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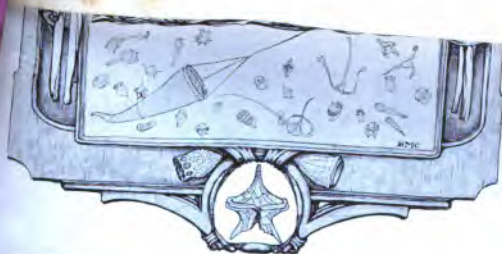
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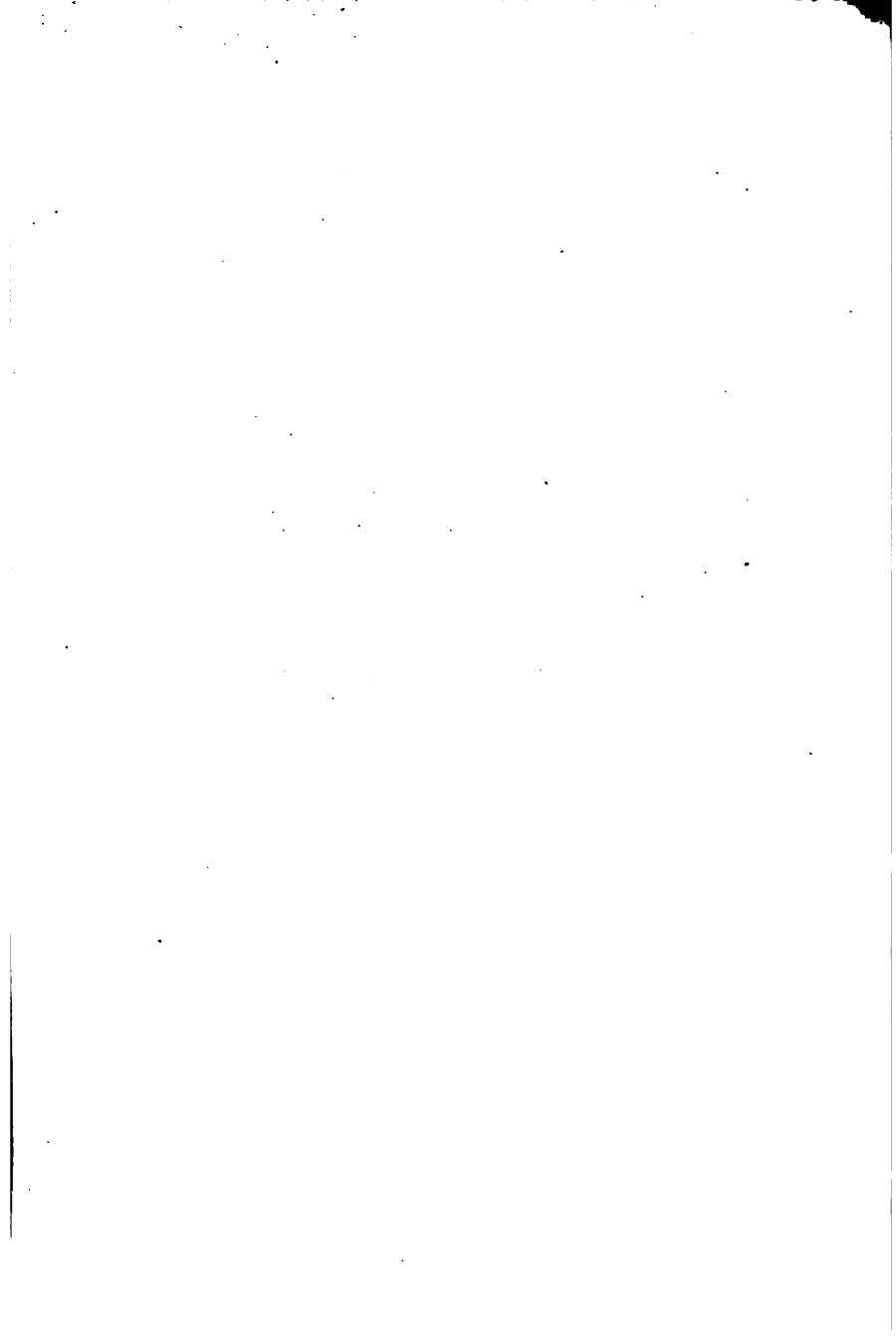


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NOTES

ON

FIELDS AND CATTLE.



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FROM THE
DIARY OF AN AMATEUR FARMER.

BY THE
REV. W. HOLT BEEVER, M.A., OXON.

*Cur valle permutem Sabinâ
Divitias operosiores?*

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PREFACE.

THE following pages are but a transcript of occasional notes made during the few months' study requisite for the profitable conduct of a small farm which I hold, as at least a restorative adjunct on which to blow off spare steam after the day spent amidst the laborious duties and anxieties of scholastic life, illustrated by a few years' subsequent practical experience.

Once away from the University the wonted "constitutional" seems to lose its virtue, and before many weeks of the half-year are spent, I have always found that each neighbouring road seems to trail with Trigonometry; each fence is hung with Prosody.

Well adapted, then, are the ever-changing aspect and chequered vicissitudes of agricultural occupation to refresh the exhausted chalice of one's existence. That this little volume shall teach any except the tyro I do not hope or expect, for I pretend to no originality whatever. If it only gives one-thousandth part of the pleasure to such readers as may farm themselves as it has yielded me in the composi-

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tion, I shall esteem myself fortunate ; and although I do not anticipate that I may further employ my pen upon these subjects, I shall be glad to have put a spoke in the wheel of a healthful pursuit, which, properly conducted, is profitable as pleasant, and has as many phases as the revolving year itself.

I undertake only to pilot the sucking agriculturist down channel : the occupation itself is so attractive, that by that time he will ordinarily have learnt enough to manage the remainder of the voyage.

Farming, at present, is assuredly at a premium. It is no longer left to the nest-egg of the village public-house—*pingui tentus omaso*—but is in manifest favour, from the Royal Lady whose “walk in the Home Park” is understood to mean an inspection of the Shorthorns, a trip for fresh eggs, and some petting of the Alderneys, down to the Yorkshire manufacturer of gigantic gains, and the agreeable authoress of that charming book, *Our Farm of Four Acres*. The spruce city banker has his compact estate, which he reaches daily on his hundred-guinea trotting cob ; and in this district at least most provident labourers have their few fields and cows to help to rear the children.

Now-a-days, too, it has its problems, and properly viewed is to be reckoned as a leading science. What store the intelligent ruler at the Tuileries sets by agriculture as an advancing and distinguished industrial branch of occupation—the very core of a nation’s well-being—his generous appreciation of the English

breeder—his model farms—his extended draining schemes—his repeated implement trials and stock exhibitions evidence. A formal fillip even the Emperor of the Celestials gives annually to agriculture, by taking a plough in his imperial hand and cutting a furrow with ceremonious solemnity: just as a neighbouring “nob” in England turns the first sod of his county railway. “In Japan,” we are informed by Captain Osborne, “agriculture is the most honourable of pursuits, for did not the great conqueror remark, ‘that it is the tillers of the ground that by their labours fill my kingdom with abundance.’”

At a discount it is but in a few places, as amidst a seafaring population—such as that interesting Sylt people of whom some notice has appeared lately, where the farm duties are attended to by the women: the landsmen being regarded as an inferior order of beings. They have the excuse that the waves are continually trenching upon their soil, notwithstanding the patient industry with which the poor creatures plant a mesh-work of protective clinging grasses along the sand-hills during the bleak autumn evenings as they keep an anxious look-out for the return from the treacherous deep of brother, lover, husband. To learn what agriculture did for Europe in the seventh century, started by the monks of St. Benedict, I refer my readers to the eloquent pages of White’s *Eighteen Christian Centuries*. The exquisite beauty of the picture there drawn with such elaborate skill I would not mar by compression. A sentence only or two I

abstract, with the earnest recommendation to all who would enjoy a delicious treat that they hasten to the fountain head, the volume itself. "Robbery, pillage, murder, and every crime were considered far less derogatory to the dignity of free Frank or Burgundian than the slightest touch of the mattock or spade. How surprised then were the haughty countrymen and descendants of Clovis or Alboin to see the revered hands, from which they believed the highest blessings of heaven to flow, employed in the daily work of digging, planting, sowing, reaping, thrashing, grinding, and baking !

" 'No person,' wrote the founder of their institution to the monks themselves, 'is ever more usefully employed than when working with his hands, or following the plough, providing food for the use of man.' And the effects of these exhortations were rapidly seen. Wherever a monastery was placed there were soon fertile fields all round it, and innumerable stacks of corn. Generally chosen with a view to agricultural pursuits, we find sites of abbeys at the present day which are the perfect ideal of a working farm : for long after the outburst of agricultural energy had expired among the monks of St. Benedict, the choice of situation and knowledge of different soils descended to the other ecclesiastical establishments, and skill in agriculture continued at all times a characteristic of the religious orders.

"At last, something venerable was thought to reside in the act of farming itself. It was so uni-

formly found an accompaniment of the priestly character, that it acquired a portion of its sanctity, and the rude Lombard, or half-civilised Frank, looked with a kind of awe upon waving corn and rich clover as if they were the result of a higher intelligence and purer life than he possessed. Even the highest officers in the Church were expected to attend to these agricultural conquests. In this century we find that when kings summoned bishops to a council, or an archbishop called his brethren to a conference, care was taken to fix the time of meeting at a season which did not interfere with the labours of the farm. Privileges naturally followed these beneficial labours. The kings in their wondering gratitude surrounded the monasteries with fresh defences against the envy or enmity of the neighbouring chiefs. Their lands became places of sanctuary as the altar of the church had been."

After a perusal of the above, beginning to cast about to see how far agriculture might have drifted from that noble position, I was glad but lately to find framed in a leader of the *Times* a formal recognition of the merits of our science now-a-days in the following terms :—"No branch of manufacture, indeed, has taken greater strides of late than have been made in farming; a good farmer is the real man of progress in the present day."

An Elsley Vavasour may smile—his type is dying out before Kingsley's pen—but as long as the colonist takes forth, and the foreigner finds he must return to

replenish the stock, which in all its varieties no country seems capable as yet of producing to the extent, or of the quality that our favoured islands do, so long shall we claim a high niche for agriculture. It yields a material which may be welded to the noblest uses. Not only this, but I claim further, that besides being a pursuit most eminently peaceful, pleasant, and reasonably profitable—the knowledge of which once acquired is nothing to carry—there is a modern freemasonry about it. It is at once a passport to the affections, an influential medium of communication with all classes, from the merchant prince who, investing his profit in landed estates, turns invariably to be a lord of the soil, down to the yeoman who is your churchwarden, and the peasant whose children are your Sunday scholars. Of those who have possessed and availed themselves for good of such knowledge a distinguished instance was Oberlin, and it is perhaps to a kindred combination of the practical and intellectual with the morally beautiful that Bishop Selwyn owes his eminent success. Would that the like of him were among us as the sand upon the sea-shore for number.

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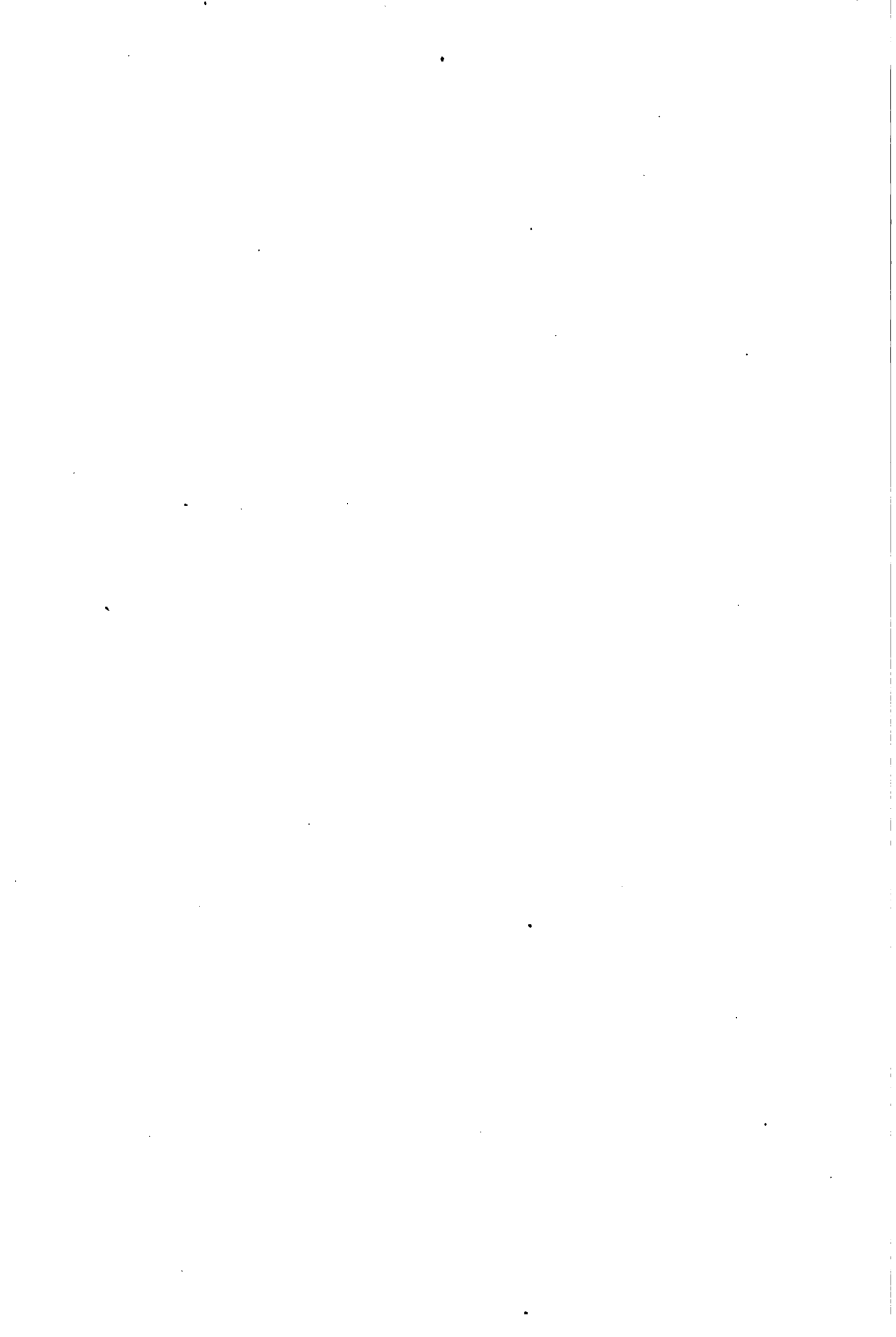
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FOR your dairy select at the fall of the year—when many are obliged to thin their stock, and some prefer to sell—a few milch cows to calve in the spring, when their produce will be most valuable: if possible, a few milch cows heavy with their second or third calf, of some well-established breed. For really good animals of an approved milk strain you will

have perhaps to pay a few pounds extra, but they will form, with due attention, the nucleus of a useful herd. A plan involving less immediate outlay, though scarcely cheaper in the end, is to buy a few first-rate heifers (termed "queys" in Scotland, averaging about 9*l.* in price), of the Ayrshire breed, and a bull of the same breed, but of a distinct family. As you must, meanwhile, keep some useful "screws" (I write, be it remembered, for beginners), you may be disposed to confine them to another field, until the proud day comes that you have a handsome, uniform, and good herd of your own breeding. Where butter and cheese are the main object, the Ayrshire cow will perhaps suit best, as combining in the highest degree yet discovered a flow of rich milk with an aptitude to fatten when tied up. For the grazier's purpose, the improved shorthorn will answer best on rich ground, or the curly-coated Hereford. The exact proportionate merits of the breeds it is perhaps impossible to decide upon; for whereas the Rev. Mr. Berry lauds up to the skies his darling shorthorns, to such talk Herefordshire, as one man, *obstinatas applicat aures*. The Duke of Bedford, after a series of careful experiments, still oscillated after all between the merits of the Hereford and Devon. It ultimately becomes but a matter of taste. It is merely which breed may please your eye. There is much, however, in the fact, that the shorthorn heifer, with her calf, may be brought at three years old to average 30*l.*, a degree of early maturity which no other breed can attain to, but the quality of beef is undoubtedly inferior to that of an older

animal, in which respect the palm belongs perhaps to the five years old Scot.

Of the cattle in vogue a hundred and fifty years ago, I find in Mortimer's excellent old work, that "the best breed is reckoned that of Yorkshire, Derbyshire, Lancashire, Staffordshire, &c. ; and a good hardy sort for fattening on barren or middling sort of land, are your Angleseys and Welsh. The hardiest are the Scotch ; but the best sort of cows for the pail, only they are tender and need very good keeping, are the long-legged short-horned cow of the Dutch breed, which is to be had in some places of Lincolnshire, but most used in Kent. Many of these cows will give two gallons of milk at a meal."

In this account we may recognise, by the light which Mr. Youatt affords in his able work, at least the chrysalis of the later Craven cow ; the Dishley, or Bakewell long-horn ; and the improved Durham, of world-wide fame to-day. The black Welsh and Scotch were probably much the same in his time as now. It may be interesting briefly to trace back and inquire into the earlier history of an animal, to which all nations of the world, excepting here and there a few islanders, have been so much indebted. What the original type of all was, it is impossible to state. Some such type we must, I suppose, believe with Pliny to have existed for every domesticated animal. By the study of infallible characteristics, the patient naturalist has come to the conclusion that from the same source, allowing for climate and human cultivation, have sprung families now widely diverse in habit and appearance. This division will rank, of

course, with that familiar one of the human race, into Mongolian, Malay, Circassian, Indian, Negro.

However, whether we will it or no, we are called upon to believe that there exists a cousinly bond between the savage bull of Central Africa, lying sulkily in wait for the unwary traveller; the cunning bison of the American savannah, so deeply ensconced amidst the reeds of the sunken watercourse as to be distinguishable only by its hump—the hunter's prize; and yon meek-eyed dapple milch cow there, sheltering knee-deep in the brook beneath a verandah of ash branches, reflectively whisking off the flies from her flank with her tail—so utterly regardless, meanwhile, of the aged female above, gathering cresses for the hall, in the red cloak the young ladies have given her. A certain amount of relationship, such as Youatt suggests, one may imagine between the sharp-eyed black group there, the like of which Macgregor drove, that peer down so curiously from beneath the thick fringe upon their foreheads at the intrusive pedestrian; between the long, active bull—that is so apt to cut off or precipitate the salmon-fisher's retreat by the tempest-torn passage of the Awe—and the Urus of the Hercynian forest, mentioned by Cæsar—elephantine, untameable—whose horns, polished and tipped with silver, they were wont to use for the grace-cup at their solemn festivals, and whose direct lineal representative is probably the modern lichen-eating Lithuanian auroch; but, how ever the connection came between the yak of Thibet and the improved Durham cow, it is beyond us to conceive: the one there, fronting so

complacently the ferocious gale, on his exalted lair among the pointed rocks—with back exposed to the pitiless storm, bare as the travelled household trunk of a bygone generation—being contented, apparently, with the rug wherewith Nature has considerably enwrapped his nether limbs, in everlasting compensation, it would seem, for his obligatory existence on those icy Asian wastes, where litter must be scarce: the other, with such queenly calmness, scarce observant of your entrance—chewing quietly the cud across her recumbent calf, as the world-renowned bailiff of Towneley rolls back the door of her stall—on whose mellow cubic form you can detect no shade or hollow, and the elastic padding of whose meat-clad rib your finger dents in vain.

Again, too, shall it be said, that from the same ultimate source came the black dwarf of Brittany, which I regret to see superseding the picturesque rich Alderney—as though the fair dames of England were returning to something of that capricious taste which prevailed by way of interlude in the days of chivalry;—the bucolic plebeian Hereford; the juicy red Devon; the mangy buffalo of the Italian wain; the grotesque Orcadian ox; the spirited, bold kine of Skye; the diminutive domestic Kerry; the sagacious, highly-trained “backely” artillery of the Hottentot armies; the ash-blue lord of the Campagna; the Sussex plough-slave; the Pembroke “poor man’s” cow; the cream-white cattle of Chillingham, whose wild instinct it is yet to conceal their precociously fierce offspring amidst the closest recesses of the brake; the bonnie stot, whose inoffen-

sive-looking harmless poll at the Paris Exhibition so pleasantly imposed upon the credulity of the Frenchman; the round-quartered Ayrshire; the dun, snake-headed Suffolk (lacteal par excellence, a very patent manufactory of milk); the chesnut cow of Barbary (*Siculae greges* probably); the Nagore bull, spoilt child of India, who will drop himself sans ceremonie so handily, with a "hope I don't intrude" air, over a six-foot paling just for a drink at a particular fountain, and, having drank, take it back again as quietly:—that one line of ultimate lineage connects all these, almost surpasses one's belief. Yet so the authorities recount, and between them it is not for a poor countryman to decide. To come, however, nearer home, what the breed exactly was in these islands when the proud Britisher lived in the straw, and painted his skin every colour without reference to harmonic combination, we do not quite know; nor would we venture to predict what it shall be when the New Zealander shall take his hypothetical seat on the ruins of London-bridge.

The best accredited history of the British cow, commencing centuries ago, is, perhaps, that the original breed in this island was the "middlehorn," represented now by the Devon, Sussex, Herefordshire, Welsh—the "shorthorn" being clearly of foreign extraction; the "polls" an accidental variety in the first instance, perpetuated by man's skill, as was the white moss-rose, which we are given to understand first came of a diseased branch accidentally developed by an ordinarily tinted tree in the garden of a gentleman at Clifton.

The "longhorns" are of Irish extraction. (*Youatt*.) Whether, again, the descendants of Master Butterfly or Bride Elect, if turned out into the wild forest, might hereafter revert to the galloping form, is a question for Professor Owen to decide. Let us simple husbandmen be thankful for what we have, and betake ourselves to our oaten porridge, grateful that our destiny has fallen on such days. Certain it is that of the comparatively distinct species of our native land—with time, intelligence, study, fair luck, and capital—a farmer may mould an animal pretty much as he pleases, taking for his elementary clay the best existent specimens he can find of the class that meets his fancy. To return, however, to our estimate of existing breeds, the shorthorn must be well kept, or she will disappoint your expectations. The Hereford and Devon are not as a rule good milkers, and are, therefore, most valuable to the grazier. To the one has been attached the honorary title of "beef-making" Hereford. It does not fetch the fancy prices of the fashionable shorthorn, but has lately been in considerable request for the colonies. To the merits of the other, the juicy red line of the deep West Country lanes, let Baker-street attest, by the many gold medals for the "best animal in the yard," which have fallen to the lot of the Prince Consort's Lobelias. As I observed above, a number of careful experiments were instituted by the late Duke of Bedford, with a view to testing the comparative fattening merits of the Scot, Devon, Pembroke, Hereford, Shorthorn, with the ultimate result only of a decision, that "it was a losing concern in

every case ; the value of the manure was not equal to the difference of the cost and the selling prices, and, strange as it may appear, the greatest loss was sustained when the beasts were fed on oilcake." Finally, the Hereford was established at Woburn ; but it does not reach the size there that it does in its "ain countree." The Rev. Mr. Berry, who did so much for them by his taste and pen, proves indisputably the superiority of the shorthorn. Turner, I have no doubt, could do as much for the Devon ; nor less successfully, if called on, would Macdonald wield his claymore for Argyleshire. In fact, when it comes to this, we are just arriving at the point where the battle of intelligence begins. Herein there is a whole chapter of equations involved : There is the soil to be considered ; the quality of cattle ; the food adopted ; the buying-in price ; the feeder's skill at fence ; the shelter ; the season—in a word, pray what not ?

A cross of the Devon and shorthorn makes a fine, quick fattening, hardy animal, possessing a beautifully marbled stamp of meat ; as also does the cross between the Highland heifer and a shorthorn bull. Of this latter admixture, a number are turned out regularly by Lord Durham at three years old, reaching fifty to sixty stones imperial in weight, and fetching from their superior quality the highest market price. The union of the Hereford and Ayrshire produces also an animal of prime quality. The first cross of the shorthorn and Ayrshire is usually a capital milker, and fattens kindly when dry. Put this cross again to a shorthorn, and you probably

forfeit the milk. To an Alderney or two in the herd, if they can be procured with a character, no exception may be taken, the first love of the amateur as they invariably are. But it is as vulgar an error to suppose that they all excel as milkers as that every German composes fine music, or that every Irishman's a wit. They have a leaning, undoubtedly, that way. I have had some as good and some as poor as you could wish in that respect. Their milk is, however, an improving element in the pail; their cream giving a degree of firmness and a golden tinge that much increases the value of the butter-yield. An Alderney you should buy to calve in the spring, so as to have the summer before her; in winter, suffering more as a foreigner from the cold than her fellows, her milk will shrink, notwithstanding any precaution you may take, or the food you supply to her. Alderneys will fatten very fairly, if not allowed to run too old. The tendency of the breed being, however, to secrete cream, she lays on fat inside, and is so essentially a "butcher's beast," inasmuch as she affords an undue "fifth quarter." A slightly pale, almost yellow tinge, moreover, deteriorates rather from the value of the meat. If you have any rough or moor-land, or a lately-drained field on which the rank coarse herbage yet waves, then it will pay you well to feed it down with Scotch, Welsh, or Irish cattle.

They fatten rapidly where a shorthorn would starve and a sheep rot. If they be young heifers, bought in autumn, some probably will prove with calf, and in that case will sell well for the dairy in

spring. Such keep on the lowlands is, in fact, clover to those whose early years have been spent by the peat moss, with an allowance in winter of what is really little else than dried rushes. On corn, cake, roots, and hay, put not one of these wild-born ones, unless of evenest temper and of fine quality. On such food, nothing will pay so badly as an inferior Scot, who is always pining to be free. Some of all sorts you may buy at Barnet fair, from the choice sleek polled black steer (averaging 8 $\frac{1}{2}$), which may be seen cropping the overgrowth of the royal paddocks at Hampton, to a rough, wild, shaggy stamp, a herd of which is imported annually, and does well on a tract of wet, coarse, exposed parkland not far from here, where the snipe breeds in summer, and you may be bogged in no time, and which it makes one shudder to ride across in winter.

On a limited extent of pasture-ground small cows pay capitally, when a larger sort would shrink to nothing. A herd of stunted Ayrshire, or Ayrshire crossed with the Alderney bull, will give an abundance of rich milk on very scanty keep. I had one, bought for 13 $\frac{1}{2}$ in the market just three weeks after calving, that gave us nine pounds of butter a week in January, besides a great quantity of milk, on hay and swedes alone. Corn and oilcake would, of course, have helped to a much higher point. Her yield lasted, if allowed, to within a fortnight of calving. She took to kicking, and I was obliged to sell her. She subsequently fattened fast and admirably, being the "prettiest beast," the farmer said, he ever had ;

and pretty with the like of him means not only picturesque.

Let me counsel you that long grass is requisite for a fattening beast, as a short, sweet bite for the butter-making milch cow. The cow, after all, being but a machine, a change of grass produces at once a flush of milk.

The Highland butter, so much sought after in the market, owes its flavour to the delicate sweet herbage that springs on the alluvial soil beside the burns at the bottom of those ancient glens. Where quantity of milk is mainly looked for, as in the London dairies, the mellow-skinned Craven cow, with her monstrous udder, is preferred, and the old Yorkshire shorthorn or Holderness, from which the improved pedigree animal was built up. They are bought just before or after calving, and are fed chiefly upon brewer's grains, kept in a brick vault until they turn sour. Those who do not wish, or who have not the means, to adopt such an elaborate system of feeding as that recommended by Mr. Horsfall, will find their cows make a highly profitable return of milk and butter in winter on cut swedes and meadow hay: a small feed twice a day of cut hay and bran or oilcake will much assist, but without that we find our cows do well and look half-ready for the butcher.

It is as advantageous to the pail as it is luxurious to the cow to have water running always before her: nine pailfuls of water were consumed in one night by six cows of mine recently, which had been grazing all day, and were fed within upon cut swedes and

hay. Swedes increase the yield of butter as well as milk. Mangold-wurzel increases greatly the milk, but it is of comparatively poor character. As they are apt to purge cattle at first, they should not be used before January or February, and then should be sprinkled with meal or salt, a commencement being made with a few slices only. You may make a few available, however, at any time by throwing them from the heap into a dry corner of a shed, when they will shrink from the excess of their watery development. The breed invented by Collings with such diligence and judgment, we should never recommend for the adoption of a farmer upon a small holding, or a poor soil; unless, indeed, he adopt the plan of buying food on a large scale—a principle upon which a three-decker could be farmed. It is only those who, by the accidental possession of rare stock, make large profits, that should attempt this plan.

A more wretched animal than the shorthorn on scant keep it is difficult to conceive: a faded tulip where a cowslip should have been. Warmth is a main essential for the secretion of milk. Your cows, if you adopt the practice of grazing them, rather than feeding on cut green food in the fold-yard, or tethering by a stake, as they do in the Channel Islands, and to some extent in the fen country, should never be confined on wet land, and should always have a shed of thatched furze or wicker-work to run under, divided into roomy stalls by poles: as in a long open shed the mistress of the herd is apt to play Czarina and butt the others out, there being

between the meek milch cows about as much real cordiality as robins indulge in. The production, in a recurring series of an animal that will at once yield a copious flow of delicious milk and fatten speedily when dried, has long been the object of as vain pursuit as the philosopher's stone. "Of the true lean milking breed," said an intelligent Welsh clergyman of a favourite Flintshire cow. Occasionally an improved shorthorn (Mr. Whittaker's were renowned), a Duchess or Mossrose, will turn up of this enviable character; and here and there a Devon or Hereford may be found. As yet, however, they are but the exceptions by which the rule is proved. The Ayrshire cow is perhaps the best combination known of the two qualities; deriving, if the legend of her origin be true, her rich strain of milk from the Alderney, her fattening propensity from the shorthorn. This breed, however, transported to better land than it has been accustomed to, will lose its milking gift and put on flesh too rapidly to suit the pail; while their offspring increases, too, in magnitude of frame. Hence, the Ayrshire farmers are said to be crossing their stock again with Alderney bulls, to recover, if possible, the thin flank and sharp neck that indicate the milker by contrast with the rounded configuration of the apoplectic shorthorn. "After all, good milkers are about as scarce as good horses" (*Mowbray*): a judgment that most dairy people will endorse.

Of that faultless herd we saw dispersed at Fawsley Park, how many could be warranted as milkers? If I remember well, one of the cowmen told me fairly,

that it was but a very limited number of them could take first-class rank in that vulgar department of bovine excellence.

Still there are deep milking tribes to be found. In all other respects, whereas once I preached against the "pedigree shorthorn," I am now bound to recant, and to profess that I have come on further experience to estimate them highly. This noble breed of cattle, the pride of England, choice specimens of which are coveted and caught at, no less by the foreigner than by her colonies for the improvement of the native kine, being, as regards the purest tribes, in the hands of gentlemen or wealthy agriculturists, the first question that suggests itself in connection with them is, Does their cultivation pay? Certainly, most certainly, shorthorn-breeding, in the highest sense of the word, does pay. It is, however, like painting, a high art, and requires a special genius for the attainment of the first place. Not every youth who invests in a palette, and haunts the galleries, can hope to produce ever a picture that shall rivet the attention of crowds, and be the theme of critical admiration. Yet more seldom is it given to man to be able to mould at pleasure forms of beauty out of living elements that shall be equally in their place attractive. If any one feel irresistibly drawn in that direction, as he who is intended to succeed will be, let him first get well instructed by converse with distinguished breeders, by visiting their residences, and studying their herds, with the lines of beauty, and points that specially characterise this sort of cattle and distinguish it from all others, whether

Alderney, Hereford, or Devon. Let him visit the great shows and sales, keeping eyes and ears open; and let him do this carefully and for some time, before he ventures upon a speculation, which, sound enough in itself when a sufficiency of cash and good judgment underlies it, will yet rapidly knock down hundreds of pounds for the rash and incompetent. And why there is this risk is, that it is no use whatever commencing to breed shorthorns for sale as stock, unless you purchase of the very best blood to begin with, which in itself implies the hazardous outlay of a considerable sum.

But when a man commences, having the requisite judgment for selection, and adequate capital to hold on without the necessity of selling until he has reared a number and attained a name as an exhibitor, with fair luck he will find it a profitable business, as it is a pleasurable occupation. Having laid out spiritedly in the buying of the first elements of the compound he aims at, whether in a bull and a few cows, or a bunch of calves, he will subsequently be often enabled to pick up at a fair (not much over butcher's) price an occasional heifer or cow of the type he likes, if he devoutly attend all the shorthorn sales that are continually taking place—some on the part of noblemen, to clear off supernumerary members of their herd, some under order of executors upon the death of an owner (and these breeders sometimes live in remote corners, rather out of the beaten track, where many do not care to follow); some, again, of necessity, when a man, from a variety of causes, finds his purse-strings too short to hold on until success arrives. It

is so that great men have grown. In the record of the earlier sales you will often find the name of a man, who has since become famous and commands his price, entered as the buyer of a cow at twenty to thirty sovereigns each, which has since, under judicious manipulation, been made the ancestress of a distinguished family, the produce of which sell readily for hundreds,—names it would be invidious to mention, or I could support my position by a goodly array. To quote an insignificant instance, we have now a magnificent cow (the pride of our herd, and superior to one for which three fifties were supposed to be cheaply laid out at a great Lancashire sale), the dam of which having accidentally come as a waif from renowned stock into a common farmer's hands, we picked up as a yearling amidst nondescripts for £14, being about half a sovereign over butcher's value. Having fixed in his mind's eye the type of animal he likes, as combining to his idea the best points for the butcher or the dairy (both, as a rule, he must not look for in the same animal, although he will find them together sometimes by rarest exception), he will then weed out all produce that does not answer his expectation. This will be wholly a matter of practical experience for him, since sometimes a cow of grandest shape and noble blood will produce stock anything but resembling herself, in either shape or quality ; whereas a common screw to look at, but of exalted lineage, will throw back (as the expression is), and present her owner with produce right worthy of her ancestral dignity and his fondest hopes. There is, be it whispered *sub rosa*,

something of accident, after all, oftentimes in the happiest results of the breeder's art. It is, after all, like mining, or the story of the chancellor's first brief. Others, as he, had diligently sat in chambers long enough, abstaining even from a run down on the Derby day; others had driven their levels quite directly into the bowels of the dark soil; but, as in the case of the silver treasures of Potosi, or O'Connell's success in the celebrated salmon weir trial, it was an Indian's tearing up a sapling by the roots in his effort to save himself from falling, that revealed the shining store: it was a stranger's handing an explanatory note across the table that solved the point of legal dispute; so may nearly all the most precious crosses in the annals of bovine, as blood stock, claim a tinge of accidental influence beyond the fondest anticipation of the breeder.

Let it not be imagined for a moment that I would suggest the withdrawal of his due credit from [any one who has exhibited to the admiring public gaze a Queen of the May, a Blink Bonny, a Royal Butterfly, a Chester Emperor, or a Crown Prince; I would merely remark that there is something therein of good-luck crowning a well calculated combination, which, after all, every industrious intelligent breeder may sustain himself in dark moments with the hopes of, but which none can rely on with certainty.

Granted, however, that these Koh-i-noors, so to speak, are in a measure the result of a happy accident, beyond disputation is it notwithstanding that success in a highly profitable degree will ensue upon the union of well-selected partners, suitable in style,

whose heraldic boast extends through a dozen generations of approved blood and shape. Small diamonds the judicious breeder will attain in abundance, with the occasional reward of a finer gem. The great charm of this sort of breeding is, however, that you have a comparative certainty of ultimately possessing a herd like in feature as kindred in blood, and how much more delightful is this for the farmer to view than a yard full of all sorts bought on this side or that with the simple view of fattening, and which can never excite in his mind the least interest beyond a dull daily calculation whether this beast or that beast will weigh the most at scale, and whether this one will even pay at all.

The fact is, I don't believe that fattening animals for the butcher pays any one. The manure they leave is the main profit, and even that when allowed, as it usually is, to lie exposed to the violence of the elements, is weak as tea-leaves compared with what it should be, and would be, if the accumulation of trodden and soaked chaff from the floor of well-tended box-fed pets.

To buy beasts with a view to making profit by the amount of beef into which one can encase their ribs is at least a hazardous affair. Only this last autumn, sheep that had been bought in to fatten on the pastures which rinderpest had swept of their legitimate occupants were actually sold, I see, at some shillings less per head than they had been bought in for in the first instance. What amount of rent will this bring? The only sort of meat-making that pays is, I believe, the keeping all stock bred upon the

farm in excellent order from the very commencement ; never allow the calf meat to waste away after weaning. Support and sustain, and increase it by dint of the most excellent keep and food that you can provide.

In every herd and flock it will, happen from many reasons that individuals fail to breed. These barren kine, if you have fairly done them from their youth upwards, will be at once ready for the butcher's knife, for it is a vulgar error to suppose that animals in good case will not breed. Look at the example of the late Towneley herd ; how thickly padded they all were with beef, and yet how prolific they proved to their purchasers. Meat gradually laid on from earliest infancy is beautifully marbled with an abundance of lean, and interferes not with fruitfulness, whereas meat built hastily is of a blubber kind, mainly fat, and almost certainly fatal to the reproductiveness of an animal. Of course something depends upon the food supplied. Oatmeal rather than barley-meal should be the corn-sprinkling on the youngster's roots. The largest, hardiest men are reared on oatmeal, and in the coal districts. From this one might argue that warmth is essential to a fine development of frame. Although doubtless conducing to their comfort, my experience is that it does not of necessity improve the size of the growing animal. I have two sisters in adjoining boxes, both winners of many prizes, one grand in stature and symmetrical withal, the other no less lovely to look on, but half the sister's size, and yet the wee one was the most petted in her youth.

I am inclined to think that a certain amount of exposure, upon a sheltered pasture, with the frequent help of an oaten feed and a lock of hay, is the surest road to the attainment of size in stock. Petting with oil-cake and barley-meal within doors leaves a plump but a little one.

Surprising is it how nature thickens the coat of the heifer that is left to her fate upon the pastures. If the food be abundant she will wear a wealth of soft shiny hair that would be worth a mint if it could be kept on within doors as well. One is almost sorry to have them in at all, they look so gay and well out, but what a treat one would daily lose in the walks around the yards and boxes if they were left continually in the fields. What a luxurious employment it is to stroll from pen to pen, patting the dear docile pets as they recline on their beds of fresh sweet straw, or daintily partake of their oft-replaced meal.

Red, white, rich blue-roan, the calves are lovely as a tulip-bed. What hopes, too, centre in them; they may be the winners of the Royal Show, or the knife may await them instead of the blue rosette. Who knows? Inheriting such richly-descended blood—the offspring of parents so true in form, so conformably symmetrical, what shall we not dare to hope? Anyhow these day-dreams do much to gild the dark despondent hour, when “there is nae luck about the house,” and are harmless, anyhow, if, after all, doomed to disappointment. The men, I find, get more attached and attentive to good than to inferior animals. So that from every point of view it pays to keep the best and nothing but the best.

There is much of good in the native cows of different districts : the fault is, that sufficient pains are not taken to select and perpetuate the line of a breed that possesses at least the merit of being acclimatised. The Castlemartin, of Pembrokeshire, is a grand, good cow. They want only a Collings or a Bakewell among them. But the elegant black heifer of Mona's Isle, with her curly-browed defiant lord, are the stock that please me best. Points of rarest excellence have the spirited herds that used to stem the wild waters of the straits from shore to shore, under conduct of a few drovers in a boat, with seldom or ever a loss ; being transplanted to Northamptonshire and the east coast, to fatten on the scraps of more favoured and fastidious kine. A worthy relic are they of the aboriginal cattle, by which, in a great degree, the first known inhabitants of our island lived, and which, on each new invasion, they drove before them to the refuge of their hill fastnesses. There are unhappily few but Colonel Pennant with the means or inclination to improve and restore them. Disposed, however, as he is ever to give the best price for a promising young cow, his people take not, to my idea, sufficient pains in hunting them up. The two crack specimens I saw amongst the shorthorns in the park were certainly inferior to several I saw subsequently here and there upon the mountain side. The great defect of the breed is its flat-sidedness. They are crossing their heifers with Scotch polled bulls. If this answers as well as did Collings's "dip into Gallo-way blood," the North Welsh may win a name again.

One of the best black cows, I am bound to confess, that I saw in the country last year was not pure bred. She was in a field overlooking the Menai on the Carnarvonshire side, just a mile short of Telford's elegant suspension-bridge. A well-to-do innkeeper kind of man was feeding her, as though she were a pet, from an armful of vetches, as he kept his eye on a gang of mowers below, and conversed immediately with such as, like ourselves, might happen to pass by. "A nice cow that! Is she a good one?" "The best in the county." "She's not quite pure Welsh, is she?" "Nay, she's not; she's a touch of the Guernsey in her:" as, indeed, was apparent. That meek eye and silky skin had not quite the Celtic character. She was well-grown too, and indicated careful nursing from a calf.

Since writing the above, I notice that the same Guernsey cross occurred in Mr. Watson's exquisite Angus heifer, of which Youatt gives a drawing in his work. One black cow subsequently caught my eye in a paddock near the Penrhyn quarries, and another in a wood by the small stream not far from Penmaen Mawr, which, with a couple more by the shores of Bala Lake, had so much promise and style about them, and were of so kindred a type, that one quite longed to possess them, with the means and time to devote to their cultivation. This breed was allowed to drift back very much during the French revolutionary war, when farmers were tempted to break up their pastures by the excessive price of corn.

The once famous Glamorganshire cow, a number

of which his Majesty George III. used to import annually into the Home Park, was, it is reported, only a cross between the old black aboriginal, of abundant blue-milk fame, with the first bovine settlers that were imported over the Bristol Channel from the high-banked hazel fences and ruddy soil of Devon. The tinge upon their coats alone might tell that. To an eye at all artistic, the analysis of the blended colours is at once apparent. Of thinnish milk a good cow of this sort will yield a cataract, but it too often takes a houseful of cake and roots to get them ready for the butcher. Hence they are being rapidly superseded, except in the hands of a few sternly conservative; so that Colonel Lascelles entices but rarely a competitor by the annual prize he gives at the Tredegar show for the "best fat Glamorgan ox."

In fact, as I have already said, you must not expect both milk and fat from the same animal. You cannot burn your candle at both ends and find it last as long. The reason is obvious, if Mr. Horsfall's theory be sound that a cow's milking power may be tested periodically by her weight; a theory endorsed by Buffon, who says that you should buy for your dairy cows young and fleshy. On the other hand, you must be especially careful that your cows are not allowed to roam in good keep when the period of their calving draws near. They should rather be put on a very bare field by themselves, where they have to work hard for their livelihood. Then, however hot the weather, however padded externally they may be with beef (and we have one that is always half-ready

for the butcher), there will be no internal hindrances, and consequently at calving comparatively little fear of inflammation.

A petted cow is sure to have a hard time of it. How sadly I remember, even now, going one bright May morning into the rich paddock, where a favourite Ayrshire was feeding, fetlock deep, in grass and trefoil. She was the very model of a cow, although one of the first I had the good fortune to possess, having been bought with some others at the sale of a deceased friend who was an excellent judge. A spotted yellow-red, low and lengthy, with a sweet countenance, a gentle eye, and a glove-like skin that might delight the grazier, she would at the same time, during her first flush, fill the pail, and yet milk on if allowed until within a few days of calving. To my delight she was standing over a new-born heifer calf, which she was licking, the very picture of herself. Two hours after I was fetched in haste, and found her reeling to and fro : staggering, as I have learnt since, half-blinded by a rush of blood to the brain. I had not the sense to bleed, but wasted time in sending for a veterinary surgeon, who did not arrive for some hours, and then to find her on the ground in a shed to which we had managed to move her. He bled and physicked her, but it was now too late. She laid back her head on her heaving side, which under circumstances of internal disorder is a most fatal sign, though occasionally you will see a cow do it when simply asleep in the sun. Her hours, however, were numbered, and I saw my pet no more.

As a corollary to this, it may be as well to warn the beginner that cows in calf, the more especially when far gone, should not be kept in the same field as calves or yearlings. The heaviest cow is sure to be the first to frolic and leap about. Hence the mourned occurrence of many a dead or displaced calf. Equally hazardous is the disposition of their soberer companions capriciously to give a lunge in passing to their labouring neighbour. Better, then, that they enjoy a small croft to themselves. Near to the cowsheds, under the herdsman's eye, with an aired box well strewn at hand, it will often be the saving of a calf which, further away, had perished for the want of obstetric help. It will be a sign to you that a cow is ailing if her eyes be dull and her horns hot. In the morning, as you take your rounds, notice the top of each animal's nose; if pearls of moisture, as dewdrops, hang therefrom, the cow is well; but if the nose be hot, dry, and scurfy, then some distemper is stealing up. By the same token, in man is a rosy underlip the surest criterion of good condition. As you go up to them in their stalls, or upon the field, pass your hand along their backs, leaning slightly. If they shrink and give way they are ailing, they have probably a chill. A dose of salts, well laced with cordial powder, will usually set them right. A bleeding helps, but is to be avoided in the case of a milch cow, if the case be not urgently inflammatory. Most bovine diseases turn rapidly to obstinate constipation. If your cowman notice one to be off her feed and tell you (an unusual fact with too many), he will probably add that she has "the tail-ill," and will

show you how a joint has become flaccid in that ornamental appendage. This really means no more than a coated tongue does in a child. It is a sign of internal distemper. Nothing will satisfy the common people but to slit the tail up by the softened spot and bind in it a compound of salt and bruised rue. The irritation produced by this treatment sometimes produces the same beneficial result that a bucket of water dashed in the face of a sick pig does, but it is not to be relied on. It may sometimes alter an effect, but it removes not the cause. A few months since I was summoned to inspect a yearling shorthorn bull that was preparing for exhibition, and subsequently won, but which just then happened to exhibit the symptom of a weakened tail. Of course I looked on gravely, and granted the cowman his way; the bleeding could scarcely do harm, but took the additional precaution of administering to the invalid a common Cupiss's ball, broken up into pellets, in a hornful of weak gruel. In a day or two he was himself again, but whether the cure was attributable to the dose or the doctoring, who shall decide? My cowman and I, we complimented each other, smiling—and with a reserved opinion each, I fear.

Fattening for shows is apt to spoil the reproductive powers, if, indeed, inflammatory disease does not overtake the patient sooner, as it has so sadly cut off quite recently the Queen of Athelstane and Stanley Rose. Hence Messrs. Towneley, Stratton, Booth, &c., usually select a few as plums to exhibit, keeping the burden of their breeding stock as lean as ever Alderney

was. I am glad to see a growing feeling of protest against the necessity of fattening in order to win, as the ambitious must certainly do now, upon the lists of the Royal.

I must advise you further, my young friend, that however pretty an idea it may be "to crop th' enticing bud," there is exceeding danger to your herd if they be allowed to browse upon copse or fences as they are coming into leaf. It is a fertile source of "red water," if not worse.

You will often, to your sudden alarm, see a cow apparently in pain at the first glance, deliberately chewing a bone which she has picked up, until she literally foams at the mouth. I thought my best Guernsey had gone mad when I first saw a case. This propensity observant and ingenious breeders have made use of so far as to keep a small box of crushed bones beside their calves, in the delighted belief that they had discovered a royal road to the formation of osseous frame.

The Irish near the coast boil down fish for their cows; nor is the taste of the milk affected thereby. The Orcadian has often to rough it on the mucous seaweed that fringes the seaboard.

A propos to the doctrine that genteel manners pay, I find it recorded by Buffon, "that oxen which eat slowly are more capable of work than those which eat quick. "Oxen," he adds, "fed on dry lands are more lively, vigorous, and healthy, than those on low humid grounds. All are stronger on hay than grass."

Oxen when idle—*otiosus bos*—were to be supplied

with straw only; when at work, with hay and a few oats, with leaves of ash, elm, oak, but in small quantities, as excess of such food causes diabetes :

“Bovemque

Disjunctum curas et strictis frondibus explēs.”

This theory of feeding may be romantic and delightful enough to listen to, but will hardly do in practice. When the red cow took Tom Thumb off the thistle for the sake of his oak-leaf hat, it was an imprudent move, to say the least of it. I have known a fine herd experience considerable loss from their being unhappily left in a field where they had the opportunity of browsing upon the foliage and buds of some oak-trees, felled for barking. What a revolution, then, was turnips! For, to feed cows through the winter on hay alone, even at only 50s. the ton in his day (which would be about 3*l.* 17*s.* to us), Arthur Young calculated to swallow half the profit. What would he say now, when hay, and that an inferior sample, has been selling in the rick-yard at 7*l.* the ton?

The colour of a cow matters little now-a-days, except in the case of pedigree shorthorns, when it is of vast importance; the roan standing first in value, and then red or white, by a scientific combination of which roan is produced.

In old time it was certainly considered that the red cow gave the best milk, and the black brought the best calves, but I do not find that any such theory holds to-day. A yellowish tinge upon the

coat, in Devonshire, is considered to show a tendency to diarrhœa.

The old Welsh taught that the red cow's milk would heal a wound, as in Sussex they said that the black cow's milk yields more butter than that of any other kind. This, you will ask, from the proprietary of those lanky reds that Smithfield has stared at of late? In Buffon's day the black cow was deemed to yield the best milk; the white cow greatest measure. He mentions also the existence of a breed of cows in Barbary, of a dark chesnut colour, small, fleet, gregarious, to the extent of three to four hundred in a herd. This cannot surely be the tawny tinge of the modern Guernsey, or the Hubback "yellow red?" But to rise to a grander view, in the tenth century colour made a vast difference in the value of a ransom paid in kine. An early record speaks of a hundred white cattle with red ears as counting equal in compensation for an offence against a Prince of North or South Wales, with a hundred and fifty dark or black cows. In this relative estimation, too, as respected tint, the native sorts stood in the regular presents sent by the Cambrian princes doing homage to the King of England. White, too, with red ears, was the herd of four hundred from the wilds of Brecknockshire, wherewith Maud de Breos was constrained, on behalf of her offending lord, to purchase peace, through the intervention of his queen, from the tyrannical John.

Hence it was that Youatt conjectures the white breed with red ears (of which we have the remnant

now at Chillingham, and at the Duke of Hamilton's in Lanarkshire, a visit to see which, best done from a tree, if we may judge by Sir Walter Scott's description, forms a pleasant side-dish for the tourist to the falls of Clyde) were a rare variety esteemed for their beauty, and chiefly preserved in the parks of the nobles; the commoner sort being "a dark or black coloured breed." Not to travel so far away quite as the milk-white steer, fed by the sweet wave of Clitumnus, "purest god of gentle waters," and destined to lead the haughty Roman's triumph by the Sacred Way, we find this colour of highest consequence in the bulls, with the sacrifice of which was closed that most solemn British religious festival on New Year's Day, when the Druids, each habited in snowy robes, with flowing beard, the mysterious wand in hand, and having a serpent's egg enclosed in gold suspended from his neck, walked in stately procession to the sacred mistletoe. What a victim would "Windsor" or "Statesman" have made!

Now that we are all running wild after African intelligence, "it is worthy of remark in this present place, that the skin of a white ox is considered by some tribes as an emblem of peace, and is analogous to the white bison hide, which is displayed by the American Indians for similar purposes." (*Rev. G. Wood.*) And here, having put in the lights of this picture, we must adjourn to another.

HORSES.

Proportion required for a Farm—Mares and Geldings—Colts—Different Breeds—Suffolk—Berkshire—Lincoln—Clydesdale—Welsh—Choice of Brood Mare—Carelessness of Breeders—Best time to Sell—Suffolk Carters sent to Australia—Treatment of weaned Foal—Comparative Fortunes of Pigs—Horse-power requisite according to the Soil—Condition of the Teams—Mr. Pusey—Foul Stables—Open Yards—Turkish Grandee's Stud—Iceland Horse—Food—Physicking—Water—Mashes—Coat of Horses—London Brewers' Teams—Food of Cavalry Horses during the Peninsular War—Treacle and Straw—Hay Chaff—Oat Hay of Australia—Cistern in Stable—Rock Salt in Manger—Succession of Teams—Royal Show—Value of Horse-dung as Manure—Breaking in of Colts—Working Hours—Teams—Horse-hair sold for Tobacco—Ingenious Groom—Restive Horses—Character of Groom—Cordials—Tan-water for Bruises—Litter in the East—Shetlands—England—Edinburgh—Length of Horses' Sleep.

THE due proportion of horse-power required on farms of various sizes I have given elsewhere, in "Memoranda of the Homestead." For shaft work you should have geldings. It is cruel as hazardous to put a mare heavy with foal in the shafts. Mares are otherwise more enduring, can undoubtedly bear hunger, thirst, and fatigue, better even than the entire male; besides they fret themselves less.

To help in the hurry of spring-time, there should be always a strong colt or two coming on, bred,

mind, from parents of first-rate stamp; or, if bought, judiciously selected. Their sale will then be inevitably as great a source of profit as any branch of the farming business. I do not propose to enter upon a discussion of the respective excellences of the various breeds, or treat of any but cart-horses.

Most counties have a useful stamp of their own fitted to their purpose. The chesnut Suffolk, the roan Berkshire, the black or dapple-grey Lincoln, the bay Clydesdale, all have their special and exceeding merit; and last, though not least, the smart, rounded, roomy Welsh mare, somewhat coblike in the pony district, but swelled to grandeur without losing her hardihood, fashion, or spirit in the vale, and as you get nearer to the borders of Brecon and Cheshire. If you breed at all, you should have an unmistakeably good mare, and put her to a clean-limbed, muscular, sound horse, whose points you may consider best adapted to suit hers. A really good mare, unhappily, you will have some difficulty in finding, and then probably at only a high figure. At railway contractors' sales they occur, where the stock goes occasionally cheap, as it is sold without reserve, the job being ended; or at iron-works, for in such hands you find the noblest-shaped animals, seeing that the proprietors stand at no price to match a gallant team, and accident often renders comparatively worthless to them an animal which may be invaluable to you.

Anyhow, if you propose to breed, get the best materials you can to start with, or your labour will be thrown away. Doing things by halves does not

pay in horseflesh. And when your mare has foaled, don't be niggardly about their keep. Then is the time to make a horse of the youngster. Plenty of soft food, ground corn, boiled beans, the sweetest hay, roots, bran, and barley-meal till vetches come ; for you cannot do them too well within reason. I must warn you that forcing a mare for show is apt to spoil her breeding, for that season, at least. Stimulated unnaturally, and that mainly with bean-flour, even if a mare be not too heated to stand to the horse, she is apt after a few weeks or months to throw the foetus, which, often no bigger than an egg, may be found, to your great disappointment, on the meadow where she grazes. To return, however : breed skilfully from mares that you have ascertained to throw good colts (there is much in that), do the foals well, and you will have the eye of the dealer's agent upon your farm, and an amply remunerative price in prospect, subject only to those accidents to which all stock and mortal things are liable.

Breed from brutes, and you must expect a brute, for "like produces like ;" but of this more again. To see the lob-headed, straight-shouldered, weak-loined, sluggish, tucked-up, goose-rumped, flat-sided, cow-hocked stamp with which too many farmers are content, left out too the winter long on marshy ground, you cannot wonder when they tell you that "horse-breeding does not pay." Perhaps the most generally remunerative way is to sell the foal from the mother's side, "a sucker." Of course I mean for the ordinary farmer ; or you must keep it to be

two years old if a carter, four or five years if of nobler race ; as yearlings, half-bred or cart-horses, fetch less than as suckers, inasmuch as they look worse. They have lost the plump beauty of infancy, and hobbledehoy points attract but few—no wise man, certainly, unless he know the stock they come of.

A first-rate colt of power and form is as much a fancy article as an emerald ; and let breeders abound to any extent, will always bring its value.

I have known a pair of three-year old Suffolk carters, colt and filly, go to Australia at two hundred and seventy-five guineas each ; sold, certainly, by a breeder of celebrity, and there is much in a name.

Your young ones, I repeat, you cannot keep too well. When weaned, which should be, both for their own and their mothers' sake, but especially the mothers', about September, give them plenty of new cow's milk, diluted somewhat with water, crushed corn, and bean-flour, with swedes to make them bone, a few white peas, and a lock of the sweetest upland hay. This, with gentle caresses, should daily be the lot of the young one in his paddock and shed. After all, what is it but so many pounds put out to interest ?

Starve a colt in his first year, and he is spoilt for ever. No subsequent treatment, however judicious or generous, can redeem the neglect of his early youth—the sinking loin, the worn look, the spindle shanks, too surely attest the treatment he received in infancy, whatever his original calibre may have been.

In fact, whatever be the stock, 'tis keep and shelter that tells in the end. Look even at that draggie-tailed Elspeth upon the stack there, doling out their pittance of mouldy hay to a couple of depressed Hereford heifers. Two years since, by courtesy Maria, she was a stylish housemaid at the castle; to-day she is the desponding partner of a too adventurous young farmer. Better had she known when she was well off. In illustration again, only to-day I noticed a red-breasted flunkey fetch in a pair of grumbling, shiny, broad-backed porkers, which, only two months ago, I deemed too dearly bought for a pound apiece. While on the other side the road, with the last sole surviving item of her starved litter crawling after her, there cropped the scanty grass a sow, the facsimile on a giant scale in shape of a young mouse—flap-eared, hairless, lank—what, a few months since, was a farewell gift pig, bought out of a prize Yorkshire small-breed lot, and presented to an old man in our village by his son, an artisan, upon his leaving for Australia. What a various fate hath befallen them! The one of aristocratic lineage reduced to the poor-house; the other, born in a cot and advanced to aldermanic plenty. On large farms, where the fields are thirty to forty acres each, or upwards, in extent, a team of bullocks pays well, there not being the loss of time in turning on such ground, which is one chief reason of complaint against the practice of ploughing with oxen; but there must be in addition a sufficient number of horses to do the road work.

Much depends, again, upon the nature of the soil :

a clay farm will require more horse-power than a light loam; while on the latter young carriage-horses may be broken in, doing good work at the same time. To half-bred horses on a loam I should always incline: they are so much handier and faster; for a clay, sticking as pitch to the plough, you must have weight thrown into the collar.

It is ruination to keep your horses in such high condition, you will often hear it remarked; whereas, it is the worst policy in the world to allow them to get too low in flesh. Not only will it cost you double the money and trouble to bring them up again that it would have done to keep them so (an animal in good condition costs comparatively little to keep on so, whereas five pounds are soon gone in getting flesh upon lean ribs again), but a farmer ought to have his horses always saleable, should opportunity of selling occur—as occur it will, he knows not how soon, if they be good, and have a character as such. As that eminent agriculturist, the late Mr. Pusey, wrote, “By the improved system the farmer is taught to keep his animals in a thriving state steadily from their birth.” (Keep their “calf-flesh” on, that is.) “Even horses, though not meant to be eaten, should not be stinted of food. Railway contractors hardly measure their horses’ oats, and two well-fed horses can do as much work, or more, for the same provender which, in the old system, enabled three horses barely to crawl.” They should be housed in a comfortable well-ventilated stable: blindness and glanders are the certain consequence of the too-usual, crowded, stuffed-up, foul-

gas-emitting style of accommodation which you will find to prevail extensively among small farmers, as once it did, to their ceaseless loss, among the cab proprietors of London.

Certain it is that many first-rate farmers keep their teams in an open yard, with sheds around, taking them in only during the day to feed. They will tell you that consequently their horses never suffer from cold, or grease ; still, I question whether it be not cheaper in the end to have them housed during the winter, as there is not then the same exhaustion of animal heat ; just as you will see a London butcher's gas-pipe flaring away at railway pace in the open air, and at an infinitely greater cost than the sheltered flame in the adjoining tradesman's window.

The horses of the Turkish grandee have a little hay given them during the day, and in the evening a sloppy feed of peas boiled with butter and sugar. Ordinarily in Turkey the horses live on barley, chopped up, straw and all. In Iceland the horse has frequently to put up with dried fish ; but the wind is tempered to the shorn lamb, and they manage to get on so kept.

Their corn and hay should be always of the best quality ; it will go infinitely further and show better results than double the quantity of inferior stuff, which distends the bellies without yielding a fair proportion of nourishment in return, produces colic, and is wasted under foot alarmingly. A mess of steamed swedes, or potatoes, is a grand help, if attainable. Mow-burnt hay is the pest for horses,

as it is a discredit to the farmer, now that the tedding machine is so reasonably available. Cows are said to prefer it; but it overstrains the kidneys, producing diabetes in the horse. If you decide yourself that a horse requires physic from some cause, be careful that he is regularly prepared for it; that is, that he have, for a couple of days before, only bran mashes and a very little hay, so as to clear his bowels as much as possible. It is very dangerous giving a ball to a horse that has not been prepared. "This preparation is necessary, because if the drugs are bad" (*Clater's Every Man his Own Farmer*, a most useful book to have), "the consequences may be fatal, from the powerful irritations, excessive gripings, and cold sweats, which may probably chafe the mucus or lining of the guts, and end in mortification and death. Bran mashes will so open the horse's bowels that the purge will not meet with any obstruction; but if a strong purge be given to a horse of a costive habit, it will probably cause a violent inflammation. This may be imputed to the large tract of bowels it has to pass through, which is upwards of thirty yards; and the time the physic lies in the bowels is seldom less than twenty-four hours. If these directions for preparing a horse be cautiously observed there will seldom any danger ensue. The purge should be given early in the morning on an empty stomach: in three or four hours after give your horse a feed of scalded bran when it is warm, and a little good hay after, but not much at a time; also two more mashes the same day. Take care the water you give be milk-warm,"

and, if he will drink it, it should be so for some days after. For other excellent recipes and directions let me refer you to Clater.

Here let me protest, as so many have done before, against keeping a bucket of water in the stable to take the chill off. It soon becomes stale : a little warm water should rather be added to the cold, fresh drawn. Hard water may be softened for drinking, by having a ball of clay thrown into it.

Bran mashes, too, require much more attention than is usually bestowed upon them : they should, as tea, be made with boiling water ; then they should be left to get cool for a sick horse, cold for another. Water, hot, but not boiling, does not extract the virtue of the bran. After physic get the horse to drink as much lukewarm water as he will, and have him led about until the ball begins to work : then put him in, or you may cause inflammation. Cart-horses, both from their breed and their being unclothed, cannot be expected to carry coats of the fineness of the thorough-bred. This, however, the carter is too apt to attempt to bring about ; and he consequently not only appropriates all the eggs he can about the homestead, which he administers as a ball with the shell half smashed, but he is prone also to give powders and briony-root (by the use of which, ultimately he blinds, probably, the best team), or a few chopped leaves of box, in the proportion of as much as will cover a sixpence to a feed of corn. All this trifling is very dangerous and useless : for why should the plough-horse be expected to carry a lustrous short coat ? A large farmer, in Nor-

folk I think, lost several valuable horses last year through this culpable nonsense.

The rival teams of the great London brewers, which are, in a degree, probably an advertisement, are a very different consideration. Let the ploughman, however, be content to have his horses plump and spirited. To my mind, even the decking with ribbons, and plaiting of the mane and tail, is as absurd a waste of time as it is vulgar in effect upon a noble pair of bays or blacks. During the summer, certainly, I lean very much to the plan of letting them out in fold-yards, well sheltered, and with a long shed open to the south.

A comfortable sight is it to see in summer time the teams, their sheeny coats glancing in the sun, busy at their cratches laden with fresh vetches, a porker or two underneath crunching away at the juicy stems that fall through, as young niggers at a sugar-cane; or meditatively slaking their thirst in the fresh liquid that comes pouring into the slate cistern by a pipe from the hill above. While the hot months last, an abundance of green food—lucerne, vetches, clover, trifolium—will keep the teams in trim. In winter, beginning about October (by no means let them go back from their summer flesh before you begin), for a big horse, one hundred-weight of good hay cut with fresh wheat straw, two bushels of oats, and a few roots per week, will do amply. If you add half a bushel of bran, or a handful of beans, they will have reason to regard you as a generous-hearted proprietor, and will not fail to repay you accordingly.

During the Peninsular war the cavalry horses were fed at one time on brown sugar, about eight pounds per diem, and did capitally. It had to be flavoured with asafoetida to prevent the soldiers bagging it, but to this the steeds did not object. This reminds me of a plan adopted—I believe with fair success—some years since in Suffolk, during a dearth of hay, of giving the bullocks in lieu thereof chopped straw steeped for twenty-four hours in treacle and water, in the proportion of one pound of treacle to a gallon of water.

All your hay should be cut into chaff; the horses will fill themselves sooner, and lie down to rest accordingly, added to which there is no waste under foot. Half a master's business is to scold about economy in hay, as it is the most expensive food of any, and was considered by Arthur Young not to pay when bought over 2*l.* per ton (3*l.* 1*s.* now-a-days, on a comparative estimate of agricultural prices in his day and ours). In Australia, oat-hay is much used; that is, the oat crop is cut half ripe, just before the seed can resign itself to leaving the shell, and with the stem half green. The crop is cut and made as clover, is much relished by the stock, and is reckoned by the settler in the bush quite as good provender as hay and corn together. Many farmers in England cut the oats up in the sheaf for the horses, giving no hay at all. There is apt to be waste by this plan, owing to the several cartings to and fro, which of course, however, as everything else, might be provided against.

The careful carter likes a cistern in the stable, in

which he soaks all the chaff for some hours before he gives it to his team. He has casually learnt in practice what he would not believe if you told him in theory, that water is a main element of his horse's build and substance, as of his own. A lump of rock salt there should be in every manger and box upon the farm. This the master must continually see to; it is a screw that is continually flying from the men's inclination or memory. Some don't like it; some won't recollect. They object if you scatter salt upon damp hay, should you be so unlucky as to have been caught by the rain; although they see their horses positively enjoy the apparently mouldy hay which has been so doctored: and you would utterly fail if you were to attempt to persuade them, that, for a lick of salt, the cattle will gallop by water on the burning wastes of Africa. However, on this head, you must be peremptory. The teams should be well sorted in respect to age and pace. An old horse and a slow horse, sell at once; they will never pay to keep. I make exception, of course, in the case of a brood mare, though her colts in her later days will not equal those of her youth.

If your teams come into regular work at three years old, you will sell off at six, and one relay replaces the other. This is open to exceptions where you may be partial to an individual horse, or have a gap to fill up, &c. At that age, however, they will be at their zenith in pluck and bloom to sell.

This is speaking generally. Of course, if you have in your hands a breed of substance and beauty fit to

exhibit at the Royal, you are a fortunate and isolated man, and should make long figures. This is the poetry of farming, a path not open to the million.

Horse-dung, as manure, is heating, and should be well mixed with colder kinds, as cow-dung, for instance, which again is slow to heat, a process, however, I may as well mention here at once, to be hastened by spreading in the heap alternate layers of refuse tanners' bark.

All young cart-horses should be regularly *mouthed*. To break in the usual way, by simply putting them between two others in the team to go to coal, when they must go as steadily as on a treadmill, suffices for farm purposes, but is apt to leave their mouths most terribly callous.

I like keeping a breaker's bit some time in the colt's mouth, even after he has become tame and steady at his work. I have one put instead of the iron handle-shaped smooth bar that ordinarily arches the lower end of the cart-harness bridle : and a piece of strong elastic is inserted in the rein, so that when, as is usual at work, the bridle is hung over the hames, the colt champs his bit and learns a fitting carriage, instead of helplessly hanging by it until his mouth becomes as impassible as an eel-skin.

The hours for working horses vary in different counties and districts. Our teams go out from eight till twelve, one till five. In some places they go out very early in the morning, both men and horses resting during the heat. This plan I should like to adopt, but it is difficult to keep good men if they deem your practice an unpleasant exception to the

practice around, which they are very apt to do if you attempt any violent change. You may introduce what machinery and breeds you please, but it is hard to keep your human helps up to the mark if they feel that they are working out of step with the men at other farms. Obviously, it not only makes them an exception to the neighbourhood, but it also puts their enjoyment out of joint.

Let each man have his own team and keep to it ; they will grow mutually attached, and work better so. Men get disheartened if you keep shifting the animals that are their pride to and fro. In some districts there is one man to prepare the food and take the teams on their return from ploughing, the ploughman doing nothing in the stable. In other places, as with us, every man looks after the cleaning and feeding of his own, which I think answers best, establishing a certain amount of affectionate confidence between allies that are to spend so many long hours on the field together. A vagabond will pull your team's manes and tails until he has accumulated a few pounds of hair to exchange for tobacco ; this practice you must nip in the bud as soon as your eye informs you. A fellow of this kind you had better dismiss at once, as the provender may go next. One sly fellow I remember, who got a white-washed cork inserted cleverly just out of sight along the inside of a beam in the floor of the granary (for it should not be ceiled, else it gives good harbour for mice) through which he used to draw a feed or two extra now and then, but which I am bound to say I believe he gave religiously to his team. It was,

notwithstanding, dishonesty, and could not for a moment be allowed.

If a horse be restive, grooms (before Rarey's day, and even now they don't believe in his system) had a plan of putting a small pebble in the horse's ear, which has the effect of making him move on, but may run down too far. A horse that would not pull I have known left harnessed for half a day without food to a waggon, which he was only too glad to draw away when the hours of punishment were over, and he had the sense not to try the trick again. Let me urge you not to keep for a moment any but careful, good-tempered men about your teams. Pick them up at once—as you soon will when you get to be known as a good master—as you hear of a first-rate hand leaving his place, that is, provided all is above-board on his part. A man who understands his work, and loves horses, is the man to have. There are those who have no care for this noble animal any more than for a spade or barrow: of such beware!

Finally, I repeat, do your horses well, and they will be a sure source of pleasure and profit to you. Whether your holding be big enough for a steam-engine or not, still, teams you must have in a certain degree. If their coats stare and they require an alterative, teach the groom to come to you. He will not spend his own money on balls, &c., if he finds that you do not object to reasonable medical attendance. They are, as a rule, too fond of powdering, &c.

Cordials, &c., are the mischief when your man can

get them for the ordering. There will be no end to his baneful administering of them.

When you first work a young colt, let his collar be left on till his neck is cool; then bathe it a few times with salt and water. For a sore back (which should never be), tan-water (that is, water from a tan-pit) is an unfailing specific.

Grey horses are to be avoided in cart teams, as the cleaning of them gives much extra trouble, and, when rusted by the harness, they look shamefully shabby.

Grudge not abundant litter to your teams. A deep soft bed, poor fellows, they require. We all know by experience that we cannot take fair rest upon a deck or bench, neither should we suppose they can, with just the shadow of a covering between them and the stones. In Arabia, Persia, and Turkey, for the evident reason that straw is scarce—and what they have they give chopped as provender—they litter their horses upon their own dung, dried in the sun to take off the smell, then reduced to a powder and strewn four to five inches thick. This lasts a long time, and when it becomes foul has but to be dried and spread again. Akin to this is the practice in the Shetlands of littering their cows with peat-dust when heath is at a premium. Sawdust has been lately used by some in England owing to the short straw-yield and the consequently high price it fetched in the manufacturing districts. This substitute some approve, some condemn as heating too much under foot. It is easy to suggest fern, but where shall we obtain it now that every common is

being enclosed ; besides, it leaves a mark upon the coat of a groomed horse, as bandages do upon the foreleg, until smoothed away by hand-rubbing. Sea-sand I have tried for the rough colts, in the loose boxes, with fair success. There are veterinary stables in Edinburgh where it is said to be regularly used and approved. We should hope, however, for straw, both on the horses' and the manure account. In autumn and spring, when they are moulting, you should keep your stud extra well, as they will be found on trial to be then weaker than at other seasons. The horse sleeps much less than the mare ; when in health he does not rest more than two or three hours together out of the twenty-four. Some horses never lie down, but sleep standing ; this is ruinous to the legs. Horses given to this practice are clearly to be eschewed.

PIGS.

Yarrell's Description—Mr. Crisp—Prussian Trade—Different Sorts : Essex, Yorkshire, Suffolk, Tamworth, &c.—Pork during the Peninsular War—Irish Pig—Pig's Dung as Manure—Modes of fattening on Apples, Mast, Acorns, &c.—Food cooked and raw—Peach Orchards—Mills and Breweries—Drayhorse—Nettle Broth—Grease—Cotter's Pig—Stores—Damaged Rice Cargoes—Milk-fed, Corn-fed, &c., Pork—Irish Bacon—Westphalia Hams—Acorns as Food—Beans—Mangold-wurzel—Physicking a Pig—Bleeding—Porcine Dentition—Dr. Symonds—The Pig superior to Poison—Flavour dependent on Food—Relative value of Black and White Pig—Clean Lair—How to prevent Pigs rooting—Cinders as a Condiment—Young Pigs—Brood Sows—Lying-in Sties—Weaning—Wild Sow—Profit of Breeding—Age of Porcine Race—Curing Hams—Historic Influence of the Pig—A Porcine Racer—Time to purchase Porkers—Access to Fresh Water essential.

“ *Sus scrofa*, *cochon*, *verrat*, common hog. Generic character—snout elongated, &c. ; specific character—back bristly, tail hairy, &c.” Shades of Morland, Wiley, Fisher Hobbs ! Whatever will ye exclaim at such teaching on the part of Mr. Yarrell ? How doctors have come to disagree hereupon ! How diametrically dissimilar is the idiosyncrasy of those sleek, rounded representatives of porcine civilisation which are being annually imported from the yards of the famous Mr. Crisp for crossing with the produce of Prussia and Russia, to the probable future damage of the present trade in bristles. To be practical,

however : this interesting native should be, as everything else upon the farm, first-rate—broad, lengthy, deep, short-snouted, of fine bone, with tail well set on ; a thin pricked ear, and skin gathering in folds even to the hock to be plumped out before Christmas, and of a breed that will fatten on clover, grass, or vetches in summer, mangold-wurzel in winter, sliced and slightly sprinkled with barley-meal. Innumerable are the excellent varieties of breed now-a-days possessing such characteristics. Wherever he may hail from (and hail he does lustily on occasion, as you may learn for yourself if you attend an embarkation of them at Liverpool or Cork), whether from Berkshire, Essex, Yorkshire, Suffolk, Tamworth, Windsor, Hampshire, Dorset—each county and district almost having its improved breed, all supremely indebted to a Chinese or Neapolitan forefather—you will have no great difficulty in obtaining what you want. To Herefordshire was due the pork provision when the Duke was in the Peninsula. Grudge not a few extra shillings (which you may easily save by travelling third-class a journey or two by way of change) in the purchase of an exemplary sow-in-pig to begin with. It is loss of time to buy second-rate stock, however excellent your judgment may be, with the purpose of improving it. Climb as far as you can on the shoulders of others who have pioneered before you, and then take up the path. You will be passed in turn, never fear, by some one now a small boy munching at a crust. Start, however, as forward as you can, and do your best while your hour lasts. Great numbers of pigs come across from Ireland now

of an extremely useful sort. In place of the gaunt greyhound "jintleman that paid the rint," which it was thought Pat never would resign, they have now a fleshy, solid, side-of-bacon kind, smacking strongly of a Berkshire cross. As regards the most profitable mode of keeping this useful animal, from Mr. Huxtable's barley calculation to Mowbray's statement that "a hundred pounds laid out in swine will return a greater profit than the same sum invested in any other kind of live stock," *adhuc sub judice lis est*. Frequent and hot have been the discussions on the subject; many successful in the pig line affirming that the sole profit lies in the manure; though after all, by the scientific, pig manure is considered cold and comparatively poor. "Only when they are highly fed for the purpose of fattening does their manure become of any value. Pig-dung contains a large proportion of water and but little nitrogen, and therefore is slowest to undergo decomposition. This arises from the miscellaneous nature of their food, and the fact that their digestive organs being very powerful, they exhaust the substances on which they are fed. It develops very little heat while undergoing putrefaction, and yields but little ammonia. Eschew growing esculents with pig manure, as it communicates a very disagreeable flavour to them: owing to a substance peculiar to the excrement of the pig, a volatile element at present imperfectly known." (*The Farmer's Reason Why*.) Mortimer, again, deemed hog's dung one of the fattest and most beneficial sorts of dung, one load of which will go as far as two loads of other dung; a rich dung for corn

and grass, "and best of all dungs for trees." What shall we say amidst so many counsellors?

The modes of fattening a pig are infinite, from the nettle-broth and stewed wheat-straw of Drury, to the rosy apples and October ale, the rum and new milk of the Messrs. Outhwaite. Much depends upon circumstances. "In marshy, miry ground, in which situations they delight to wallow, swine devour fern, frogs, sedge, &c.; but in drier spots they feed on sloes, crabs, hips, haws, chesnuts, acorns, beech-mast, and similar wild fruit" (*Complete Grazier*); and, with opportunity, we must confess it, flesh; in fact, "to be a pig," is it not to feed on anything ravenously? But that applies mainly to the old greyhound lot. Modern breeds are better taught, or at least better brought up. There is a controversy, too, about the expediency of giving pigs their food in a cooked or raw state; cooked bears the palm, so far as I can judge, but you may see much on both sides in numberless works upon the subject. Pliny mentions as a surpassing food, either boiled or roasted, the root of a kind of water-lily, found plentifully in the Euphrates, a mysterious plant, that at evening dipped down its flower farther than a man's arm could reach below the surface, returning with the dawn to welcome the sun. He had, probably, not heard of the less poetical potato.

In Sicily and parts of Italy, the large tuberous roots of the cyclamen afford the favourite and main food of the wild boar. In North America it is recorded (*Goldsmith*) that the family porker has the run of the peach orchards, faring luxuriously upon

the fallen fruit ; whereupon, as is the way with the under-bred of every species when exalted, he becomes so nice as "to reject what has lain but a few hours on the ground, and will continue on the watch whole hours together for a fresh windfall."

In this country, dairy-farms, flour-mills, and breweries present, perhaps, the best opportunities for keeping this stock ; at the latter kind of establishment, however, it suffers much from diseases which are attributable to the too heating food it gets, just as the sleek London dray-horse, indulged daily with hot liquor, will often drop down dead in the street, and is dangerously affected by any—the very slightest—hurt, even of a nail ; and as again, there have been cases of people in a bad habit of body dying from the prick of a gooseberry-bush.

The cotter's pig, which has been said alone to pay, has his food usually concocted thus : a few nettles boiled (too many irritate and make their skin red), some dock-leaves, a few turnip-tops or small potatoes, what slops, plate-washings, &c., there are to be had, a little grease (it is astonishing in how great a degree the oleaginous element of food, according to French calculation, multiplies itself in the reproduction of fat—I have mislaid my note of the exact estimated ratio. Hence, in that country, it is a common practice to give fattening beasts a ball of pork-grease night and morning to hasten their blooming), a few pennyworths of brewer's grains now and then, a soap-sud bath once a week, a clean bed, an occasional handful of salt—(not brine, mind, that's simply poison to a pig, *est modus in rebus*)—or a spoonful

of sulphur in his breakfast. Such is the whole secret of the management of his porcine highness in the only sphere where he becomes at once a pet and profitable. The above I have had at the lips of an experienced old lady who once brought up a pig for me taken at random from the litter, every one of which it soon outstripped in size and quality, although they were well fed in the rough, taking ultimately a prize at the local show.

Ten shillings on an average each pigling costs her, two to three months old. She further supplied me with the triumphant statement that of two she has brought up, both bought at the above-mentioned price at the above-mentioned age, in twelve months one sold for 3*l.* 10*s.*, and the other was killed and cut up eighteen score. She keeps her pet for a year, as has been stated, and then occupies some six weeks in putting on the finishing touch of plumpness, using for that purpose on the average five bushels of barley-meal. He is then killed, weighing upon an average from fourteen to sixteen score.

Store pigs will do well on swede turnips and a handful of meal, beans, peas—stewed or ground. Buttermilk and bran, if attainable in any quantity, is princely food. Where thrashing is done with the flail in winter for the cattle to have fresh picking, the porkers will do well rooting in the chaff and refuse thrown out by the barn-door, with a mangold bulb or two to qualify and moisten it. I should remark here that it was determined, long years ago, that pigs fatten faster on white peas (not grey, they too much resemble the bean) than upon beans: that

their flesh swells in boiling, and is superior in flavour to that of swine fattened on beans, which shrinks, moreover, in the boiling. The estimated quantity for the consumption of a hog in good condition when put up to fatten, was about six or seven Winchester bushels of peas: each bushel increasing his weight after the rate of nine or ten pounds; so that when the animal is finished off, he will weigh some twenty score. Quoth Tusser on this head in concert:

“Fat pease fed swine,
For drover is fine.”

If you have the opportunity there are sweepings of rice, linseed, &c., as well as an occasional damaged corn cargo, to be bought at remunerative prices at the seaport towns, London, Bristol, Liverpool, &c. For these chances, however, there is a bright lookout kept by the large pig-feeders, and you must have a friend on the spot if your residence be, as is likely, at some distance in the country. Egyptian beans and Indian meal form a good, and comparatively cheap, element for mixture in your slop vat, yet all inferior, and perhaps dearer than the royal food, unmistakeably effective, anyhow, as I have found it on trial of the magician Thorley. In a disquisition on pork, which I found, myself, interesting and instructive, Mr. Mowbray, giving his results of forty years' practical experience, wrote: “*Milk-fed* pork is superior to any other description, not only in delicacy of flavour, but in substance and weight, none weighing so heavy in proportion as the milk-fed animal. Hence the bacon of the dairy counties

is superior. Milk will fatten pigs entirely, without the aid of any other food, a practice sometimes in the dairies. *Corn-fed* pork is next in value; peas, oats, and barley being the best adapted grain. *Bean-fed* pork is hard, ill-flavoured, and indigestible. *Potato-fed*, it is loose, insipid, weighs light, and wastes much in cookery. Hence the inferiority of the Irish pork and bacon to the English has been calculated at three ounces per pound. *Clover-fed* pork is yellow, unsubstantial, and ill-tasted: fattened on *acorns* it is hard, light, and unwholesome; on *oilcake*, *seeds*, or *chandler's greaves*, it becomes loose, greasy, and little better than carrion; on *butcher's offal*, luscious, rank, and full of gravy, but of strong and disgusting scent."

By other authorities, *acorn-fed* pork is said to have a peculiarly delicious flavour. There are not, however, in England, the opportunities for obtaining this provender that there used to be when heart of oak was in more request for the dockyards. To the chesnuts and acorns the German hogs enjoy, is attributed, in a great degree, the superior flavour of the Westphalian ham. (*Stephens*.) The same is said of the Lisbon pig. Henderson mentions that "the late Sir James Colquhoun of Luss, I have been told, was in the habit of sending his pigs to one of the islands of Loch Lomond, where there is an oak plantation, that they might pick up the acorns, which is said to have given a surprising degree of delicacy to the flesh."

The acorns, others say, should be gathered, baked, and ground to flour. This comes again somewhat to the vexed question of cooking, or not cooking. Mor-

timer mentions that "in Staffordshire, on a poor, light, shallow soil, some sow a small white pea, which they never reap, but turn in so many hogs to eat them as they think they will fat, and then they let them lie day and night, and their dung will so enrich the land that it will bring a good sward upon it and graze well many years afterwards."

Pliny distinguishes between the relative value of beech-mast and the different kinds of acorn, in a rather lengthy disquisition, and as an Italian should be rather an authority on the pig question, in consideration of the Neapolitan noble that originated Lord Western's famous Essex black breed, with all deference let us listen. I can give but a summary :

1. Beech-mast makes a pig feel jolly, his flesh capital to cook, and easy of digestion.

2. The acorn of the holm oak (*ilex*) makes a pig sleek, but tucks him up and narrows him ; turning him out eventually, however, a weighty parcel of sound, lean meat : a good side of bacon for the mid-day cabbage-pot dinner of the gaping rustic household.

3. The acorn of the common oak (*quercus*)—the sweetest and heaviest of acorns—fattens well, but the meat is flabby.

Beware, especially with pigs, of supplying them in undue quantity with food of a binding nature : as, for instance, with milk and wheat-flour, dry beans, &c., which are the mischief, unless quickened in their passage by a few fresh mangold slices. On the other hand, I should remark that these same mangolds, unless in turn corrected by flour, will upset

the pig's inside, as indeed that of any other stock if used too fresh ; that is, before they have been some two months out of the soil, or have been somewhat dried in small heaps about the sheds, so as to have lost somewhat of their sour wateriness. To counteract surfeit and the like, to which their aldermanic appetite makes them liable, keep giving sulphur occasionally in the food, or an ounce of castor oil (if you see the least symptom of dulness), which, floating on skim-milk, our friend will swallow up in a twinkling, not having, I presume, the nicest of palates ; for physicking a pig is not all fun. It is rather a difficult, and often unsatisfactory business. What with encircling his head with a halter amidst the most execrable din that mortal ear can meet, then forcing his jaws open with a broom handle, then poking down his gullet a morsel of bread soaked in croton oil, or some such extra potent nastiness (for a pig takes a deal of moving), it is a job that one would not care to undertake a second time. An old-fashioned, but I have understood successful, mode of treating a sick pig when not too far gone, is to meet him in the straw-yard with a bucket of the chilliest spring water, and dash it over the face and shoulders of your patient. What with the shock his system experiences, and the fright, and the pace he invariably breaks into, a heavy perspiration bursts forth, which is his saving—a simple adaptation, I conclude, of the principle whereon the talented author of "Eothen" shook off the plague when despaired of at Cairo : his dose being simply thick blankets and hot tea. This is, I presume, when you notice first

symptoms—when he is somewhat off his feed or the like ; for you may note it down, and not in sand, that when once a pig is taken really bad, especially if in high condition, you may as well sit down and write his epitaph. Quoth the shrewd old Tusser :

“Through plenty of acorns the porkling too fat,
Not taken in season may perish by that :
If rattling or swelling once get to the throat,
Thou lovest thy porkling, a crown to a groat.”

You bleed a pig easily from a vein running along the inside of the foreleg ; the neck vein, the most serviceable in the case of the horse, cow, and sheep, in the pig lies too deeply buried.

Discard, by all means, the old clumsy plan of snipping the tail or a portion of the ear off. One of the most marvellous discoveries of modern veterinary science is the law of porcine dentition, whereby the scientific undertaker to tell a pig's age to a few weeks, if not days. Almost an accident, or rather the pressure of circumstances, led to the discovery, on the part of Professor Symonds, of a law pervading the phenomena of a pig's teeth as constant as any mathematical formula. All in vain have numberless feints been essayed to dislodge the Professor from his position. There is a good story he can tell, of how he was sent for to inspect several trios of porcine fry, by a well-known breeder, whose lots have been occasionally disqualified at Baker Street and Birmingham. There is such strong temptation to exchange a weakling, or “to give a crowning rose to the whole wreath,” in the shape of a plump cousin from an

earlier litter. The trap was artistically laid: on cleanest straw were ranged the tiny Sybarites, all of one size but of different ages, in hurdled pens, with all the paraphernalia of a show. Business commenced, and an irrepressible, half-triumphant smile played over the faces of the smocked attendants, when the Professor happened to hesitate a moment in his scrutiny. Yet a failure notwithstanding. One thoughtful inspection more, and the man of science rose as Antæus from the straw. The Doctor was himself again, the trick exploded, and the facts were laid bare; or rather, to parody Kelly's famous prophecy, 'Twas Symonds first and the pig-fanciers nowhere. Since the above was written, the dispute has occurred respecting Lady Chesterfield's pen. I cannot, I confess, lose my confidence in the medico. If, however, he has temporarily just mistaken a root for a square, it will work itself round in the problem. There was clearly a mistake somewhere. But the subject has been stranded: "there let him lay."

A strange immunity in another respect does the pig enjoy. I read in Pliny of his contemporary, the Italian hog, that,

"Like to the Pontic monarch of old days,
He fed on poisons and they had no power,
But were a kind of nutriment."

For a venomous lizard that infected the very apples if it climbed the tree—the touch of whose foot only was death in the meal-tub or well-water—this Neapolitan porker crunched only with such an increasing satisfactory appetite, as a first course of oysters or

a Dunstable lark is supposed to give the human epicure.

I make digression to remark here that more is due to the influence of food than folk generally imagine who enjoy it. Its celebrated flavour Epping butter owes to the cows feeding, in summer, on the wild aromatic plants that abound upon the shrubby pastures of Epping Forest; as the arbutus skewer gives traditionary, but, I think, imperceptible, flavour to the Killarney salmon steak. Herbs, beyond a doubt, affect the milk of cows; as, for instance, the turnip and the pestilent wild onion. The milk of the Hebridean cow, feeding upon the sea-shore fuci, is said to yield delicious butter. The cheese they have derives a rare sweet fragrance from the favour shown it in the making—rose-leaves, cinnamon, mace, cloves, lemon, being mixed with the rennet. Small blame to it for being prized under such provocative circumstances!

In Ross, by the way, they have a singular practice of burying the cheeses, separately, within the high-water mark, for several days, in order to give them a blue colour and a rich taste. "May I be there to see!" there is, I fear, many a schoolboy would exclaim with Gilpin. The canvas-back duck of America becomes the savoury dish it is from feeding on the wild celery. The abundant small black trout in Loch Katrine are coloured by the peat draining. With a view to improve their flesh, the French feed on hempseed the quails they send over to the London market. We have long supposed that the sweet blue moth, fluttering over the ripening flax crop, inhales

its heavenly hue from the colour of the flowers it lodges on ; and silkworms weave in accordance with the food supplied them. But, after all, this is not to be wondered at, when man, by dint of intelligent art, has actually come at last to tint the very petals of a favourite flower at will. I refer not to the negative process, whereby we all know how the descendant of St. Denis blanches his chicory salad—viz., by immurement in a garden bastille, where the oxygen tap of light is all but cut off—but to an actual fact of colouring in broad day, by supplying the root of the plant with a medicated drink.

The black pig is often preferred, as being less liable to skin-disease, and having a thinner rind than the white sorts. The first objection may be met by the observance of proper cleanliness, a constantly fresh bed, and an occasional washing (it is a myth, by the way, that pigs cut their throats with their claws in swimming) ; while the skin of the black one will often require to be anointed with mutton or other fat, to soothe the cracking surface ; or with tar, in summer, to heal and drive away the flies from the wounds they get by rubbing. There is another intermediate colour occasionally seen—a sort of Napoleon grey, which comes of a cross between the black and white (as the roan of the shorthorn is from a red and white admixture ; red sire and white dam produce roan ; white sire and red dam, spotted red and white—as a rule ; no rule without an exception, but such usually holds), occasionally tinged by a light umber or treacle wash. This Pliny states to have been the hue of the Indian wild pig. Now-a-days, though

found in Shropshire, and other English counties occasionally, it appertains most properly to the Hebridean and Orcadian porker. Yet, piggie of the golden hair, thou too hast thy well-earned value ! They tell me thou'rt the favoured guest, not for the flavour of thy flesh, but for the bristles that adorn thee, and which form the staple element of the rope most trusted of the island cragsmen in their dangerous trade of fowling. Hence, the impunity with which Yarrell tells us that he devastates the corn lands, working for his wallow deep holes that hold water as a basin, to the great detriment of the surrounding crop ; and which would astound our native agriculturist, ever so forward to complain of each hoof-mark imprinted by the hunter on his wheat or clover.

Pigs allowed to lie out upon a dung-heap, as they will do for the heat, are apt to become scabby, and, Mr. Mechi states, get the heaves or lung disease. They should have comfortable sties, well littered with clean straw. For, 'tis a libel upon the breed to say that they have a preference for dirt when a cleanly retreat is attainable. Wallowing we must regard as a bath, which of necessity he takes sometimes in the porter-coloured, and, I doubt not, caustic liquid of the straw-yard ; but which, probably, were no more to his taste, gentle reader, than yours, were a bed of oozy clay convenient.

To prevent a pig rooting up the pasture various modes are adopted ; some paring off with a razor the gristle on the top of the nose, to the quick ; others dividing the ligament, which never re-unites, so that the snout is powerless ; others inserting a ring. The

latter plan is, perhaps, the most humane. Something undoubtedly must be done, as it is a bad habit that rapidly grows upon them, and they do much mischief in no time, which it takes trouble and money to repair.

Buffon mentions that pigs root up the ground in quest of earthworms as well as bulbs, and that the wild boar has a stouter snout, whether from practice or nature, than the domestic hog, and digs deeper in a straight line ; whereas the tame sort goes at random every way, being obviously less dependent on his nasal apprehension. There should be always a heap of cinders, or burnt clay, in the corner of the sty, which you will see young and old routing about and cracking like walnuts, on occasion. They enjoy it much, and it does them good in many ways, correcting acidity and conducing to their more rapid fattening by the carbon they swallow.

You must not expect too much, however, from a willing horse. I mentioned the fact once to an old gentleman of an economical turn who was delighted by the acquisition to his receipt-book, and determined to try it forthwith. Some weeks afterwards, meeting at dinner, he reminded me somewhat reproachfully of what I had recommended him to do, declaring that he found the pigs had not only not come on at all, but had rather gone back. On inquiry, I found that he had cindered them with a vengeance, having left them almost altogether to the resources of the heap. This was simply ridiculous. You might as well pen a gourmand on a bottle of Chutny.

Mind and do your little pigs well. The sow should be richly fed throughout the nursing, so that when you wean the litter they shall be pretty stout to start on their own account. Still, at the best, it is a ticklish period when they are first put over the nest. Ruinous as cruel is the policy of stinting an infant. It is far better for you to keep half-a-dozen in good trim, ready ever for pork or winter baconers, than half-a-hundred trotting everlastingly, semi-fed, about the fold-yard—scabby, wizen-looking, and pot-bellied—in anxious search for anything to pacify the pangs of their hunger. Starved in infancy, young stock seems to lose not only size, but in a great degree its aptitude to fatten.

It is best to reserve for breeding the sows which have about ten or twelve teats. Retain not, however, more than nine of a litter, if you get so many. It is curious how jealously nature has taught the pigling to recognise and adhere to his own peculiar one or pair. A ludicrous instance of this I have this moment on the farm, in the case of a lusty young monarch of all he surveys—his brethren having come to an untimely end. This young representative, whom I value for his lineage, is satisfied with the contents of two teats; the others having been allowed by some mysterious natural process to dry up. He is certainly stout enough, and may possibly drain more than he has credit for by some plan of his own. The sow going sixteen weeks with young (Yarrell says that “the time of gestation is about one hundred and twenty days, or rather more”), it should be managed that the services of the accoucheur be required in

March and September, as cold weather is death to little pigs. A high-bred lot are apt to drop their tails, as *infra dig.*, I presume, or from anxiety to rise to a higher order of being. This disfigurement, however, for such it is, may be prevented to a certain degree by a light dose of physic, a taste of oil in their soup, and anointing the sore place with a little digestive ointment.

Around one, at least, of the sties, as a lying-in hospital, there should be run a couple of rails one above the other, a foot from the wall, the lowest being about three-quarters of a foot from the ground, into which a sow can be removed as the period of her confinement draws near. The great risk at such times is of the little pigs' being smothered by her lying helplessly upon them in her pain, whereas if there be a rail she is likely to bear against it, so that the little ones, if they have the bad luck to get underneath, will either work themselves out, or escape the great burden of her direct weight. They soon learn worldly wisdom enough to take refuge behind, where you should have some soft straw or hay for their especial use.

Under the sow at farrowing time there should be little or no straw, as with the best disposition she is then more apt to annihilate some of the wee ones who may be lost to sight, having gone burrowing on their own behalf. The best practice, however, is to have her watched, and the little ones taken from her as they appear, and kept near the fire in a hamper, in wool, for a day or two—being carried to and fro for their meals. This entails a little trouble, but it

is well repaid, as you may so save a whole litter, three-fourths of which, if left with her, the chances are you may find with their tongues out "done to death" within twenty-four hours after birth. As soon as they are pretty strong upon their legs and can expostulate lustily, you may leave them in the fenced sty with mamma altogether, having taken care first to initiate them into the secret of their harbour. All this a savage mother will not allow ; nay, often she will devour her offspring if meddled with at all.

As a preventive against this awkward finale, a wash of aloes and water, into which the piglings are dipped just newly farrowed, has been used. A "fond parent" of this sort, it will pay you best, however, to fatten and consume in turn. Gentle sows are sufficiently attainable to permit the immediate sacrifice of a savage. If the wee ones be ailing, a hot bath for them, and a dose of castor oil to the mother, of which they will enjoy a reversion through her milk, is safe and usually successful treatment. That the sow will require warm food, gruel, &c., after her labour, and must be carefully tended for some days, it is almost superfluous to remark. Indeed, unless the tyro have servants about his stock who of themselves will exercise such ordinary thought, he will have a very mountain to surmount. I may notice only that boiled beans promote especially the flow of milk, and that for those sows which litter in autumn, lettuces are the most wholesome and juiciest of food.

Towards weaning time turn out the sow occasionally by herself, and accustom the nursery to take

warm milk and slops on their private account. This will grease the slips for their final launch into life, which should take place as soon as they have shivered through the ninth week, when the matron should be thinking of baby-linen again. The rule of weaning with the wild sow is simply to go dry. She ceases to suckle when her milk fails. She does not, however, set her litter adrift then. They are allowed a knife and fork at the parental board until able individually and single-handed to encounter their normal enemy the wolf. Hence the French sportsman, with the flourish of his jovial horn, starts from her lair in the beech forest the she-sangler with oftentimes a pack of porkers of all sizes behind her, in number equal to a small town's national school. She has, however, but one litter a year, and that born usually in June.

A sow that can rear five families of ten in two years, Mr. Stephens calculates to return a yield of 25*l*. The skin of swine, Mr. Youatt observes, "is soft, fine, and delicate, and bears no slight resemblance to the skin of the human being." The cannibal epicure is said to have likened his favourite food to roast pork, and makes a distinction even as to hue. "At Tanna," the Rev. Mr. Turner, in his work on Polynesia, writes, "cannibal connoisseurs prefer a black man to a white one. The latter, they say, tastes salt!" The diseases, too, of swine, consumption, measles, dyspepsia, scorbutic affections, and their causes, are also analogous to those of man.

It is on record that the sow will get away about farrowing-time and take refuge under a pea-stack, or

the arched claws of an ancient tree, supplying herself and young with food from the nearest corn or root-field; but we will charitably suppose that yours is not of this Westphalian sort, and need therefore dwell no further on the subject. Sucking-pigs (which near a town pay excellently) are best killed at the end of three weeks; porkers at four to nine months, according to size. Baconers should rarely be kept beyond two years for your home consumption. An old sow butchered results most rank in flavour; if you have kept her long breeding for her superlative points' sake, dispose of her notwithstanding as bacon. The older they grow, too, the more difficult they are to fatten. Let not the pig, then, try the Babylonian numbers, or he will never spend again a happy hour. Destined by nature to grow for five to six years, the full duration of his life being from twenty-five to thirty years (*Yarrell*), about twenty according to Aristotle, both male and female lasting fertile till fifteen—how is it for them to lament, except in such rare instances as the pet “bantam sow that swept the ground,” mentioned by White of Selborne, that the march of civilisation has shortened their days? To the young housekeeper, I may hint that when you get so far as the preserving of hams, there are bottles of pyroligneous acid to be purchased at the chemist's, two or three light washes of which, after curing, supersede with equal effect the old tedious plan of flavouring by suspension in the smoke of a damp straw, wood, or turf fire. The small breed of pigs is best adapted for porkers, being apt to grow too fat when kept to serve as bacon. You will

excuse my reminding you further that you should get rid of your porkers before the hot weather comes, that is, during the month of April at latest. Further, let me add, that pigs fatten quickest in autumn, as food is then most plentiful, and they lose less by the pores than during the summer months. Quickest of all they lay on flesh during a slight frost, as do rabbits, long-billed birds, &c., the thriving being probably due to "the gentle check which the cold throws upon insensible perspiration." (*White*.) It is right to mention, for the benefit of the enthusiastic, that exhibiting in the pig classes at any of the great shows is simply gambling; there are such multitudes bred now, so perfect in shape and quality, that really the judge's decision depends upon the mere question of a few inches this way or that way, the plain deduction from which is, that he who breeds a parcel only yearly can rarely afford to break a lance with one who counts his host, as did Xerxes at Salamis, "by thousands." Nor simply domestic have been the services of this useful animal. Besides the creditable share it takes in our household economy, it has played an important part in the world's history. Detested by the Israelite; its sale prohibited within the walls of Christian Rome; its grease upon the cartridges at least the nominal cause of the late disastrous Indian mutiny; there remains beyond the memorable fact that it was owing altogether to the value the Chinese set upon the pig in life and death that the progress of Mahomedanism was arrested on the borders of the Celestial Empire. It did, in fact, for China, what

M. du Chaillu informs us was done for Southern Africa by the terrible gorilla-haunted chain of central mountains. Yet, gentle reader, being informed how thus a kingdom's destiny was changed, imagine not that there intervened some *ὁδὸς χρῆμα μεγιστον*, such as of old laid waste the Mysian Olympus and robbed Croesus of his heir ; nor, again, a prophetic Lavinian sow ; nor such a brute as that of Erymanthus, that gave the convict Hercules so hard a day's work ; nor such as slew Adonis, but simply the united interest of a standing army that country maintains of those dear dumpling-like *porci bimestres*, which Juvenal so aptly terms *animal propter convivium natum* ; the like of which Horace was wont to suck his fingers over at his Genius's "gaudy ;" the discovery by John Chinaman, of the exquisite deliciousness of whose "crackling" has been so humorously depicted by Elia's pen, and which was, consequently, not to be resigned for all the Mahomets that ever drew sword.

Lastly, I may admonish you that as a rule it will scarcely pay to keep a pig for racing purposes. I refer not to those immortal pairs which Captain Cook benevolently turned out to multiply and reform the New Zealander's larder, but which the reckless people mounted at a sort of Pacific wake or revel, and galloped right to death, but to one that I remember in the possession of a certain Highland widow which she backed to beat any pony in the country. She bargained only for choice of ground. The challenge was accepted, the day appointed, and a crowd gathered to behold. At the last moment

she elected that the race should be down hill some two hundred yards to her cottage. There was no alternative, so with a pattern donkey boy "up," the pony was led beside the porker to the post: the keen old lady remaining at the bottom. The signal given, she began beating most horridly an old tin can: away, and down they pour—pony and pig—helter-skelter—neck and crop—at such a rate, but imprimis piggie:

"They are off! she has won! 'Over bank, bush, and scaur,
They'll have fleet steeds that follow,' quoth young Lochinvar;"

and in truth it was so, for though the precaution had been taken to have an accomplished steersman on the horse, it was all to no purpose. Pig picked his way too swiftly through the gorse and boulders: his advantage from the start was enormous: he had been trained over the course, and there was the pricking of his appetite to boot; for she had kept him fasting some hours, and so the old lady won her money and a name. *Floreat vivatque.*

For buying pigs the cheapest season is, perhaps, about Michaelmas, when the harvest fields are cleared, or during the months of March and April, when litters are prospective or abundant.

And now, when I tell you finally that pigs should always have access to fresh water (notwithstanding any quantity of slops they may consume), I shall have told you all that comes upon the surface of my mind at present respecting the porcine race.

SHEEP.

Exhibiting Females—Sheep Dogs—Sheep Call—Evenings in May—Original type of Sheep—Corsican Moufflon—Welsh, Cotswold, Southdown, Roman, Dartmoor, Radnor, Merino Breeds—Cotswold Sheep degenerate in Wales—Black Sheep—Sir Charles Morgan—Spanish Shepherds—Shelter for Sheep—Straw Pens—Thatched Shed—Folding—Arthur Young—Tartar kills a weak Foal—Nursing Lambs—Abortion—Breeding Ewes—Mares slinking Foals—Weaning Lambs—Best Keep—Symptoms of disordered Health—Remedy—Fatal Propensity to follow in Sheep—Stupidity—Dipping the Flock—Shrewd Rat—Trimming the Hoof—Precautions against the Fly—The Rot—Cause—Peasants harvesting on the Campagna—Author's Experience of this Disease—Suckling Ewes escape—Ellman's Opinion—Probably die in Parturition—Nature of Disease—Recipe—Preventives—Professor Symonds—Estimate of Deaths: Youatt's—Symptoms of Rot—Age to begin Breeding—Time of Lambing—Christmas Lambs in the South of France—Docking—Castration—How to form a breeding Flock—Food affects Flavour of Mutton—Can a Sheep be fattened twice?—Comparative value of Wool of Wether, Ewe, Ram, dead sheep—Plucking practised in the Orkneys—Value of Sheep as Fertilisers—Effect of Digestion on Food—Law of Increase in Nature—Leaves derive nutriment from the Air—Australia—New Zealand—Music aids to fattening—Growth of Wool—Norway Sheep—Sign to Mariners—Highland Sportsmen—Nature of Fat—Suet—Slugs' Tenacity of Life—Shelter for Sheep on Turnips—Penrhyn Castle Plan—Mountain Sheep—Small Farmers' Plan of Sheltering—Wretchedness of Ordinary Exposure—Fleece—Washing Flocks—Shearing—Yolk of Wool—Weight—Clipping Lambs—Ellman—Clip Tails of Ducklings—Experiments at Rambouillet on the Growth of Wool.

My little fellow, the bailiff's son, who acts under his father's direction in charge of the flock, has been at me for several days to allow him to exhibit some ewes at the approaching district agricultural show. Having but a few, I am averse to exhibiting females, as the extra feeding requisite to make them catch the judge's eye, if it does not kill them, is very apt to spoil their reproductive powers. But I do not like to damp the spirit of the boy; a spirit which, encouraged and directed, may some day stand me in good stead; so, after premising that I shall allow no petting, no privilege beyond a piece of extra good pasture with fetlock-deep clover and sweet herbage appropriated to their use, I allow him to summon the flock. To sheep-dogs there is an objection for driving ewes; as when they are heavy with lamb, the least fright may cause abortion. A few days' drill will accustom them to come to any peculiar whistle, or the clapping of the hands, as Eastern slaves do. Only let them be driven up gently once or twice to where you stand by a gate leading into a fresh pasture, or where you have spread for them the reward of a few bundles of vetches, if in summer-time, or of ivy—of which they are especially fond—if in winter, they will in a few days recognise the signal, and start up to follow the first sound of it.

How many a pleasant hour I have spent about sunset in May, book in hand, upon a favourite bank beneath the fragrant blossom-laden branches of a twisted crab, watching the gentle creatures as they strayed about to feed: the lambs larking in bundles,

now this way, now that way, or breaking out squib-like where you might least expect them ; while ever and anon a grey-faced pet, so low and lengthy ! would advance softly alongside peering in my face from beneath the luxuriant tuft which adorned her head, with an imploring air that wins at once the anticipated acknowledgment in the shape of a small bunch of clover, or a saucerful of oats from my jacket-pocket.

What the original type of the sheep was, it is difficult to say. How fashion and care, and culinary requirements, subvert and recast Nature's primary organization in the various species of domesticated animals ! The points of excellence to a butcher's eye are the very opposite of those which we find in the wild state. Curious is it to contemplate the broad, level back, sustained on rounded girders springing wide, well padded with thick prime meat, and to remember that this comes of an original shape not unlike the house-top with flat sloping sides, apparently to let the rain run off, and a great development of offal.

It is easy to understand how the moufflon that haunts the far-off snow-clad peaks of Corsica and Sardinia, or peers upon you from the brown rock as you glide by through the bright blue waters of the glorious Mediterranean, may have a common origin "with the wild flock that never needs a fold," coursing there before the faithful colly, as antelopes across the scraes of Cheviot side ; or with the pretty scared Welsh specimen, that springs with unerring step from point to point up the apparently perpen-

dicular face of the rock, its tiny lamb in tow, as your fruitless shot at the lightning-quick diver, by its reverberation through the caverns of the Great Orme's Head, has startled them from their contracted patch of aromatic pasture. But however the tubular, frilled Leicester, or the obese and homely Cotswold sprung therefrom—or the heavy-fleeced, thick-framed, lordly sheep of Lincoln—or, above all, the lovely, oval, petted Goodwood South-down—it is hard to imagine. Nevertheless, that it is a fact we are taught by naturalists of eminence, with whose opinion I should fear to fence.

Something like an intermediate step you may see on the Campagna. I remember turning a hundred yards from our immediate line, in returning from the Circus of Maxentius, with a bunch of bay-leaves gathered on the very meta, to take stock of a number (a long-legged, shallow-carcased sort they were) feeding on a sickly pasture under the charge of two Menalcas-like shepherds, who were leaning against a low wall, picturesquely, in brigand hats, with pipe and staff, in old classic attitude, with an air exactly of

“O Melibœe Deus ! nobis hæc otia fecit ;”

yet with a lurking look, as we drew near, that showed them probably not less sinister on occasion than the wolf-dog crouched growling at their feet : whether it might strike them to cut your luggage from the carriage, or interrupt your meditations on the adjoining Appian Way. The various English varieties it is not my intention to dilate on, for you

will learn their distinctive characteristics best from some one of the many excellent illustrated works published of late upon the subject. Suffice it to say, that you had better, at least, begin with what good specimens you can find of the breed approved of by your neighbours, as no kind of domesticated animal depends more upon locality than the sheep. If you be destined hereafter to throw light upon the subject, your turn will come when you have settled down to your occupation.

The different breeds have each much to be said in their favour. The diminutive Dartmoor ; the semi-tamed Radnor ; the obese, big, long-woolled midland sheep ; the juicy Down ; the rich Merino—all have their respective excellences. Much depends upon locality ; for while a long-legged, heavy sort is required to tread into fitting consistency for the growth of wheat, the sago-pudding of the oolite formation—on our unequal lands we find much profit from a cross between the Cotswold, which in its pure state degenerates among us, and the native Welsh sort ; which, not to be confined between hurdles, you might think there was more poetry than profit in attempting to improve. The Cotswold may possibly not like our air, or finds not a sufficiency of special and artificial food ; as the rhododendron will fail unless it have a strong feed of peat soil at its roots. Anyhow, it recedes continually in size.

Some affect a black variety, not as victims to propitiate the tempest, but for the peculiar tint of cloth their wool yields, and which never wears white. The late Sir Charles Morgan had a large flock of such.

It was a pleasant occupation, that of David, the "following the ewes great with young;" for which he sighed, I doubt not, sadly in his later days. I know nothing on the farm so delightful as administering to the wants of these dear creatures; they are at once so helpless and so confiding; they soon come to know their feeder so well, and you recognise every face, too, after a little practice. Those stories of the Spanish shepherds singling out their sheep by name, no longer astonish me. Then, when their allowance of corn and cake in the troughs is done, they will press around you so entreatingly, searching your basket, and even the pockets of your shooting-jacket with their noses, in hope of more.

"Oh! they won't go under shelter, I never saw them in my life," was the gratuitous remark of one of those loitering busy-bodies whom one gets about one of necessity now and then—on thrashing-days, for instance, to help—on the first occasion that I set about making some provision for my pets, against the wet months. On that occasion, as the straw was cleared from the thrashing-machine, I had built a long stack as a wall to the north, and another at right angles against the east, with a lower one along the southern and western sides, where the entrance also was, that the genial influence of the sun might permeate their lodging. The straw was then pulled, a foot or more into the stack, so as to form a recess all around. Small pens were then divided off along the stacks with hurdles, and covered with straw. The plan answered famously, to the unwilling astonishment of my bigoted hinds. The flock would

follow at a run when the first few evenings I fetched them in myself; the young lambs gambolling and frolicking along, with here and there a playful young mother; the old ewes following tame and confiding at my heels, until within twenty yards of the enclosure, when they would make a rush for it, with its comfortably furnished troughs of chopped cabbage, corn, mangold, and cut hay. I have ever since had a low thatched shed, about a hundred yards in length, open to the south, built upon fir pillars, just the space of a hurdle apart, and about a hurdle high; so that in a few moments the side may be closed up, or left open for the sheep to stray in and out at their own sweet will. Inside there is fixed a line of deep rain shoots along the wall, about eighteen inches from the ground, protected at the same time that they are supported by a rim of sawn fir-pole, to which rings are fastened every yard. This affords an ample manger for their corn and chaff. The floor is excavated to the depth of a foot or more, and filled with fine-sieved ashes or burnt clay, on which a light covering of chaff or chopped straw is strewn, being continually removed as it gets soaked. This carted out in spring is a famous mixture to compound with superphosphate for the turnip drills. Should it grow too high it is cleared away sooner and thatched over, a new supply of ashes being laid. This is at least as profitable a mode in regard to the manure as keeping them on sparred boards over a V pit; pleasanter certainly for sheep and attendant, and probably more healthful. Arthur Young, who argues well against folding sheep, except in countries where the flocks

would not otherwise be confined, and which he states to entail a loss of 2s. 6d. to 4s. per ewe by comparison with an unfolded flock, considers it the best practice to confine the flock in sheep-yards well littered at night, "by which means you can keep your flock warm and healthy in very bad seasons, and at the same time raise a surprising quantity of dung ; so great a quantity, if you have plenty of litter, that the profit will be better than folding on the land." This plan he further recommends, in that "so warm a lodging is a great matter to young lambs, and will tend much to forward their growth ; the sheep will also be kept in good health," besides "the quantity of dung, which will be very great." My plan of strewing ashes under them in a water-tight shed, to be drilled in as superphosphate, I am vain enough to think will pay better still, inasmuch as the manure will go further. But let me testify here, that the oftener I read the more I wonder at this eminent man's gift of management and practical thought. Would that one could meet and listen to the like of Young and Bakewell, and a few such ; but there are great men now-a-days, and they not chary of their kind, inestimable, counsel.

A weak lamb, as a rule, I do not care to nurse, especially if a twin ; just as the Tartar kills an unlikely foal. They seldom come to much, and they give a great deal of trouble. A farmer's wife, bustling, jolly, encircled with handmaidens, may have the heart and means to bring it up before the kitchen fire ; but an amateur cannot usually secure such a hospital, especially as there is great danger in feeding

them upon cow's milk ; it is too rich for them, and produces a most fatal kind of constipation, through the accumulation of curds in the bowel: the only chance of dealing with which is to administer plentifully a weak solution of Epsom salts, until, if the case go well, the concretion dissolves. This disease old farmers call "skit," and attempt superstitiously to cure it by hanging a circlet of green withes round the patient's neck. If you do decide against this Spartan plan of clearing off the weaklings, you cannot do better than nurse them with a baby's bottle, having an india-rubber top to suck at. This is far preferable to the usual clumsy fashion of a soda-water bottle with a quill through the cork, which the shepherd has to pull at himself every two minutes as it fails to draw.

During lambing season the heaviest ewes, and especially those whose udders are filled, are put in pens by themselves at night. They are, moreover, kept in after parturition for a day or so, unless it be beautifully fine. The shepherd must be lively and about, as ewes often require assistance. But see there ; that's unfortunate. Do you notice that young ewe with a dark stain of some oozing liquid on her wool behind and down her thigh, of catchup-like consistency and colour? In summer it were the indication of maggots' sad work : it has a different, but unhappy, meaning now. Let her be caught at once. Here it is : the shepherd finds protruding just an atom of a decaying limb—the foetus itself, dead and foul, is drawn forth by the merest touch. In another hour the ewe had slipped

it herself. She has been jumping, or got frightened by a dog; has been driven, somehow, from her wonted equanimity. Let her be moved at once far away, and washed well with a solution of chloride of lime. There is nothing so contagious as this slipping, or slinking, of lamb or calf. It seems to come of their scenting one another. Anyhow, leave that one among them, and half the flock will come to grief. Remove her, and you may prevent the occurrence of any further instance. Feeding ewes heavy with young on wet, clinging, fallows greatly conduces to this misfortune. A breeding flock, during gestation, should be kept on a dry pasture. Be most careful, too, that your feeding of them is regular and even, especially towards the last. Any sudden change of food produces a flush of blood, which is too much for the hidden burden of life within; so that it parts away often, moorings and all, upon the very verge of regular birth. Something of this kind, apparently epidemic, occurred among the mares in this country last year. Where the owner was at hand, with knife and tape ready to tie the umbilical string, the foal was saved; but dozens bled to death upon the ground with the string unsevered.

When you wean your lambs, about July, probably, clover in blossom is of all food the most forcing; sainfoin rowen is excellent; but if neither of these be handy, there should be held in reserve a sweet bite of fresh grass.

When you take your morning or evening saunter over the fields, should you notice a sheep strayed away, and lying down apart from the flock, you may

reckon upon something being amiss with it. You should delay not a moment in having your shepherd up, and seeing what the matter can be, so as to adopt the fitting remedy ; either to bleed or remove to shelter, and a dose of salts. Or look yourself at once, for minutes are invaluable when inflammation threatens ; and you should know how to let blood with your penknife, or pocket lancet, if requisite.

When cattle or sheep stretch themselves on rising from the ground, you may know that they are well and hearty. When they chew the cud, too, they are well. If their coats stare, however, and their eyes are dull ; if the nose be dry and scurfy, and especially if the hide stick close and hard to the ribs, then pass your hand with something of pressure along the back. If they shrink down from your touch you may rely upon it they are ill ; have either caught cold, or have internal disorder coming on, which, taken in time, may be checked by warm nursing and a dose of salts, well seasoned with some cordial mixture, an addition that animals ovine and bovine, but especially the latter, require in a greater degree than their equine and porcine compatriots.

Remember that sheep will follow always where the leader goes, even to destruction ; timid as they are reckoned, there are no forces so steady in their approach to a breach. Alas ! that the cause is not courage, but its opposite. I have known them follow one upon another into a ditch, until they had choked a great piece up, and dozens were suffocated beneath the superincumbent weight of their entangled com-

panions. I have seen them, in like fatal sequence, climb up a high straight pitch of unprotected granary steps, and follow the leader, Sappho-like, from the uppermost in heaps before they could be arrested. Tales there are of a mountain flock, on more than one occasion, taking at a fly, one after another, in quick irresistible succession, a man who happened accidentally to stop the way in a narrow pass. It is, probably, for some reason of this sort than in Spain a road of the extreme breadth of two hundred and forty feet, across the cultivated lands, is required to be reserved for the migration in October, from their summer pasture on the table-lands to the lower ground again, of the flocks of the Mesta—an injurious protectionist association of sheep proprietors, made up mainly of the ecclesiastics and nobles.

With equally unreasoning and fatal persistency will a flock of these animals follow the marauding wolf that has chased away and killed their companion, not daring to attack, but stupidly beating defiance with their feet, until he has laid low some fourteen in turn, and regaled himself to the eyes in their hearts' blood. A sad coward, I am constrained to allow, too, is the sheep. If it gets entangled in those thorns, which should have been cut away around the pasture, or roll over on its back, there it will remain, feet up, like a turtle, without effort to recover itself, until often they die of suffocation, unless noticed in time.

Mind and take an early opportunity of dipping your flock, as soon as the ewes have well got over

the effects of parturition, and the lambs are pretty strong ; the process not only kills the ticks that are so troublesome to them and effectually prevent their fattening, but greatly improves the wool.

The lambs will not thrive, however good the keep, if tortured by that demoniac parasite.

Great care must be taken during this operation ; in fact it is one of those dangerous straits when the captain should be himself upon the paddle-box, for unless the very utmost care is exercised, the poisoned liquid that constitutes the bath is, through their struggling, liable occasionally to get down their throats, from which, however small the dose, they are sure to suffer, if not die. A sunny day should be chosen for the dipping, and they should be turned out into a yard until their coats are dried—a yard free from all clumps or fringe of grass on which the liquid might drip from the wool, with a probably murderous effect to any unfortunate that might attempt to amuse its confinement by browsing. There was a case last year of a farmer losing a large flock, from their being allowed to range over a meadow immediately after they were lifted from the tub, the arsenical or other poisonous ingredient which had settled on the grass being imbibed into their system. Some farmers dip their flocks twice, or oftener, during the year. You must not allow the lambs to join their mothers until they are quite dry, and have had their udders well washed with fresh water. You must take care, too, that the fowls do not pick up the poisoned parasites : keep them away for a few days from the sheep-shed, else they are apt

to suffer by reflection, just as the ill-fated dog did after a meal upon a villain rat who had taken the sensible precaution of wiping off the poison with his fur from the bread-and-butter cheat which was to slay him. There is a wash, however, not poisonous now advertised, but I have not tried it, and cannot, therefore, pronounce upon its merits.

Another essential that requires the head's looking after, is the regular trimming of the sheep's hoof. In its native state upon the mountain-side, its frequent collision with a rocky or other hard surface, prevents effectually any injurious overgrowth. But as our flocks are not in a native state, something else has to be done: for when the horn begins to overgrow the soft part or sole of the foot, dirt, sand, pebbles, &c., soon begin to work up towards the quick, and will cause, if neglected, suppuration, and a bad foot. Periodically then—say every two months; except in the case of the ewes when they get heavy, when they should on no account be turned over, unless the farmer has a mind to make them abort—the shepherd and another, for the shepherd cannot usually manage a big sheep by himself quite to our satisfaction, should go carefully over the flock, with a keen drawing knife, cleaning off all raggedness of edge and broken corner: laying bare each cell or crevice in which a dark powder-like residuum of old mud has lodged, and cutting out the mischief with a decided groove, that reminds one of the work, which as children we admired, of our grandmamma's famous apple-scoop.

Be not nervous about paring away the external

horn, for its growth is rapid ; leave not behind the least ledge under which one single grain of grit can ensconce itself: darkly at its leisure to mine a treacherous way upward to some vital spot. For this work you must catch them "with the dew upon their feet," or after a wet day, when the horn will cut like soap.

In the hot months, when the fly is about, your flock must be looked over continually. Despite the dressing of fly-powder which you should give them early, a marauder will sometimes steal an opening. Look out for the dirty stain of maggots' juice upon the wool that indicates the spot where they are writhing in accumulated life. In twenty-four hours your sheep may be past cure. When they are struck my shepherd does nothing more than pick the maggots out, and rub train-oil well in. We have never had any further trouble. There are plenty of other receipts which you may find in any veterinary volume.

When Horace wrote

"Dulce pellitis ovibus Galæsi
Flumen,"

he was not so far wrong as one might suppose, though with his lounging epicurean tastes he probably knew more of Falernian than fleeces. There is no risk to sheep grazing along the banks of a flowing river where the banks are firm ; there is more need to fear often on a mountain-top : as will be understood when it is explained that the best authorities have determined rot to be due to that

which causes ague and low fever in man: the breathing the exhalations of marshy ground. It is where

“the lily drinks
The latent rill, scarce oozing through the grass
Of growth luxuriant,”

that you will have to fear.

That which makes Sierra Leone the white man's grave, is much the same as what afflicts the ovine race with this fatal disease.

When the old farmer plucks a crown of the carnation grass (“them pinks,” as he contemptuously designates the detested herb), and holds it to you as the bane which almost swept away your predecessor's flock, making them pine and die away by scores, trust not the flattering tale. “It's them pinks in your land does it”—his porker-like eyes winking with mischief all the time.

The pretty blue butterwort (*Pinguicula vulgaris*) has been brought up on the same charge. Dr. Deakin remarks, that “like many other marshy plants it has been accused of occasioning the flukes (*fasciola hepatica*) or rot in sheep.”

These hapless plants are not the cause: their growth is simply a distinguishing characteristic of ground that will rot sheep, as thistles are of rich soil, and wild camomile of a good wheat bed. Drain these pastures deep and dress them with quick lime: the carnation grass will disappear with the pestilential atmosphere and malaria in which it thrives, and you may feed your sheep there after a while with perfect impunity; supposing of course that

your neighbour's adjoining fields are not soaked and sour with redundant moisture, for your flock might then inhale the poison through the fence. There are several "commons" in this neighbourhood over which hundreds of wild sheep ramble. Of these there is one never free from rot: there are others that have never known it. On that where it is found, there are several springs, not rising to a clear head, but absorbed around into the spongy ground. On the lower side, locked in by the meeting of three sloping hills, there is a lake which, full in winter, drains off nearly dry during the summer months. The skater, as he glides over its frozen surface, sees below, not as in Lough Neagh the towers of other days, but a gay luxuriance of coarse grass, which, as the waters shrink *favente Favonio*, becomes a coating of corrupted matter; the whole length and breadth of which is laden with deadly malaria, as fatal to the sheep as the Pontine marshes to the human subject. To the border of this pool, thus festering with slimy and decaying vegetation, should the sheep advance to drink, it is struck at once—an instant does it—one sniff will suffice. Only yesterday, after I had written the above, I came accidentally across the following passage in Whiteside's "Italy," borrowed by him from a work of Mr. Spalding's, and which I quote in turn as supplemental to my own idea.

After stating that the Romans themselves take no part in gathering the fruits of the Campagna, he continues: "The peasants from the mountains, the Abruzzesi (male and female), who come down in

hundreds to earn a wretched pittance by the harvest work, toil from early dawn to sunset, and then lie down for the night on the bare cold ground. Then rises from the infected ground the clinging white mist, which has death in its bosom: the fires lighted about the sleeping places are insufficient to scatter it, and the poor mountaineers are thinly clad. Within a week the most sickly drop; the marsh fever has infected the majority of the others before the reaping is concluded, and it attacks almost all the survivors on their way home. More than one half of those who thus come down from the highlands die in the plain, or soon after their return. Those who escape look at their starving children and prepare to go down again the succeeding year. During this horrible scene, the Campagna has scarcely any other inhabitants than the reapers, except a few of the hardier animals, with their herdsmen, who, left in the pestilential flats to attend their summer pastures, ride over them with long pikes, and wrapped in sheepskin cloaks. These men die in their first year, or after the seasoning fever become inured to the climate, which has imprinted its ghastly mark upon them for life."

This is exactly what occurred last season to a portion of my flock. From stress of room I had been obliged to part it and send some to a low-lying portion, drained three years since, but adjoined by marshy ground. Luckily, I sent the worst; they were not there many nights. It was on a wheat stubble. One evening I saw them enveloped by a white mist. The next day, at some inconvenience,

I had them off, but it was too late ; they were every one stricken, though for a long time I hoped against hope. The ram who accompanied them seems to have escaped : he was in very high condition, having just won a prize, and had a thicker coat on, but I have my apprehensions that his eye is paling and his brisket yellow.

It is a singular provision of nature that ewes suckling their young are not liable to the disease. This doctrine I find Ellman denied. It is well sustained, however, by other authorities. Should they have laid the seeds, however, before parturition, sufficient time not having elapsed to bring it to a head, they are liable to die off at lambing : though usually their lambs decay within them, and they waste on to die. It is stated, on good authority, that sheep may pasture with impunity on doubtful ground, provided they are driven to it daily after the dew is off, and are brought away some hours before nightfall. It is safest for a young hand, anyhow, to shirk this close sailing. One fatal moment, when the sun is extra hot, may dash down all his hopes. When the ground is frozen you may certainly pasture it without fear. But let the thaw commence, and you cannot decamp too quick.

There is much, after all, of mystery enwrapping this disease. It is connected undoubtedly with the fluke, a kind of little flat-fish about the size of an aged wood-loose, which abounds in the diseased liver. This, some are of opinion, is an apterous insect, found adhering to stones and plants in boggy lands, where it is swallowed by the sheep. It is,

however, more or less numerous in the livers of most, even healthy sheep; and I have heard old shepherds say, that if you keep a sheep to a very advanced age, so that it dies a natural death, you will, on opening it, usually find it rotten. Sheep, then, are especially liable to this nabob ailment. On the other side, there are those who maintain that, taken early in hand, it may be cured. The liver will sometimes make a desperate effort to renew itself. Butchers tell me that they have found the new supplanting the decayed. The infection can scarcely have been severe, one would think. The following is a useful drench, which it were prudent to administer all round your flock at the fall of the year, if the season have been wet: for an unusual fall of rain, extemporising new springs upon the pasture, to be evaporated again, will make the safest ground "unsound." Hence you hear, in "a rotting year," that sheep have "gone" on land which was never known to affect them before. The drench is as below. A neighbouring farmer attributes the escape of his flock during this last disastrous season to the use of it. I tried it on a few far gone without benefit. However, here it is (*Clater*):

"Nitric in powder, six ounces.
Ginger fresh powdered, four ounces.
Colcothar of vitriol in fine powder, two ounces.
Common salt, three pounds and a half.
Boiling water, three gallons.

"Pour the water hot upon the ingredients. Stir them, and add to it, when lukewarm, three ounces of spirit of turpentine, and bottle it for use."

Fallows are safer than pasture during a rotting year, it is said : perhaps it is that cake and corn, or, at least, hay—anyhow dry food is supplied them there. Salt is esteemed a preventive ; whether it be that it kills the fluke formation, as it strengthens the inside of an ailing child, to the expulsion of a worm bed or not, I don't know. Others consider that a handful of dry barley each, daily, will keep a flock sound. Others teach that it is advisable, with this view, to sow some pounds of sheep parsley over the meadows. It is readily obtained from any seedsman. All these remedies are undoubtedly a great help to the sheep's condition, but as to saving them from liver disease, if exposed to the noisome exhalation of a pestilent place, few men of experience would rely thereupon.

It is cheering to learn that so distinguished a man of science as Professor Symonds proposes inquiring deeper into the nature and causes of the disease, "with the hope that, ere long, preventive means may be adopted to limit the development of the entozoon—the liver fluke."

Youatt states that more than four millions of sheep died of rot alone in the United Kingdom during the winter 1829-30.

The unmistakeable symptoms of this disorder are as follows—and you should have your flock often inspected, for the dreaded change comes insidiously on, so that, for a while, they even improve in flesh, until they reach a certain point, when they begin to go back with a run. To begin with, a sheep lags behind the rest : then if you catch her and look

beneath the eyelid, and especially about the caruncle, or pea-sized fleshy knob at the corner of the eye, you will observe an unnatural paleness approaching to yellow. The veins being charged with a liquid of this hue are no longer discernible streaking the part like a piece of pink seaweed, as when the animal was in health. The breath is fetid; the feet hot. The gums are also of a yellowish white colour. The wool comes off easily in your hand. This yellow tint grows darker; the poor animal gets more and more emaciated, until finally diarrhœa sets in and all is over. When slaughtered the belly is full of water; the meat is wet, and runs with water. The fat is yellow, and the liver decayed. It is at the sickly season of the apple gathering—that month when singing-birds are mute—that this fell disorder first infects the flock. With care and dry food they may survive the winter, but as wasted skeletons, to sink with the first bite of the reviving grass.

Ewes breed as yearlings; at the same age too are the rams serviceable. To begin with either, however well grown, as lambs is unwise. Ewes continue breeding until seven or eight years. I have known a favourite, nursed on bran-mashes and the like, until fourteen, for the chance of a lamb, by a celebrated breeder too.

The ram is supposed to live to about ten, being useless after eight. Salted water is said to bring them, if slack, in season, as hempseed does a mare; a quart mixed in her corn.

Unless fat early lambs be looked for, house-lambs they are termed, for the London or other markets,

the farmer is ordinarily content to have them drop about the end of February or March, when green food is nearer; lambs that defer their appearance until May are called cuckoo-lambs, and are of little worth, as they attain to but small size comparatively.

In the south of France, where, by the bye, the small farmer is much given to rowen-fields, you may see flocks of weaned lambs at Christmas-time.

Many prefer to dock the lambs almost as they fall, castrating at the same time all the males except a few from the best ewes; unless, indeed, you propose to hold a ram sale.

Some defer castration until they have attained the strength of yearlings. If killed sooner, as five-year-old mutton now-a-days is, I fear, with rarest exceptions a myth, they should be kept far away from the stock, or the blood is apt to streak their meat, making them one red, and so spoil its appearance and flavour. Shut up by themselves, they are about as good as wethers at that age.

To attend sales of draught ewes yearly, for the purpose of building up a flock, will only bring a second-class lot into your hands. Go in at once, and buy anyhow a score, first rate and young. Better begin so than with three times as many of a lot cashiered.

Wild thyme and other odoriferous plants have the credit of giving a delicious flavour to mountain and down-fed mutton; others deny that they will touch such food; while, again, it has been said that the Southdown wether owes his delicate sweet meat to a

quantity of minute snails that he swallows with the stunted stems of the down pasture.

Mutton fed along the sea, especially above the sea is certainly superior to any other ; the salt incrustation from the driving spray may aid this quality. It tends, anyhow, to keep them sound. Salt marshes are a place of safety. Some have been of opinion that a sheep cannot be fattened twice—perhaps not with impunity. It may suffer from its constitution being trifled with. Fattened, however, it can be undoubtedly a second time ; as, for instance, when finally put up for the butcher, having been reduced temporarily for breeding purposes, after exhibition in an obese state.

The wool of wethers is best, and more abundant than that of the ewe and ram ; that on the neck and top of the back is superior to the growth along the thighs, belly, tail, &c. ; that torn from dead or diseased sheep is worst of all ; in fact, fetches just half-price. In some countries, the Orkneys for instance, they used to pluck the live animal ; this painful barbarity has of late, I believe, been superseded by the shears.

The sheep has a golden foot, the Dutch say. A flock of one hundred, in one summer, will fertilise eight acres for six years. To do this thoroughly they should have vetches, corn, or cake carried to them ; the field being fed off regularly, patch by patch.

Much good is done by their feeding even on what springs under them. The internal mysterious process of digestion (of the merit of which Bakewell

thought so highly, that he would have his neighbours' cattle into his yards in winter to help in the consumption of his straw for the sake of the digested manure) is much aided and abetted chemically by an accession of imported food. But still even to yield in digested form what they have derived from the surface, improves the heart of the land; the very wormcast (*White's Selborne*) is reckoned, "being its excrement, a fine manure for grain and grass." The fact is, there is a law of increase in nature; sow a fallow with mustard, plough it in, and you will have enriched the land considerably, viz. in the degree that this green crop has imbibed nutritious, that is nitrogenous, matter from the air. The mighty forest sheds its leaves, but to stimulate a new growth of such. It seems, as it were, that Nature has set us farmers a good example in unfolding her reserve fund of Australia, New Zealand, &c., only when we had worked our home resources to the quick, just as the prudent old stager keeps an extra field in hay to be converted into pasture should the next summer turn out dry.

Sheep fatten more kindly, 'tis said by Buffon, to the sound of music. This concertina theory may do for foreign parts, but will scarcely suit our rustics, I'm afraid, here in England. Still, the temper of the shepherd is of vital importance to the flock-owner.

It is considered that wool grows faster on sheep well tended within doors. In the islands near Norway, the sheep that are constantly in the field are found larger and better woolled than those within. It is curious that the wild sheep there sleep

always on the side where the wind will blow from next day. This is a sign well known to the mariner in those seas, and significant as the cries of the sea-fowl by the South Stack, on our own coast. That animals give warning of a change is well known. The Highland sportsman delights to see the cattle high upon the hill in the early morning, for he knows then that the day will be fine. Before rain, dogs sleep, fowls cackle, pigs carry straw in their mouths, ducks earnestly immerse themselves, and haughty man is, despite himself, depressed.

An important element in the butchers' "fifth quarter" of a well-fed sheep is the internal fat. It may interest a few to know how in this regard different species of animals are differently provided. Animals that chew the cud have suet: that of the sheep is more abundant, drier, whiter, and better than any other. Suet differs from fat or grease in that the latter remains soft, but the former hardens in cooling. The suet amasses about the kidneys mainly, much about the intestines, but the firmest and best is about the kidneys and tail. Sheep have no other fat but suet; the flesh is covered with it.

The fat of man, and those animals which have no suet (such as the dog, horse, &c.), is pretty equally mixed with the flesh, not collected at the extremities, but covers the animal all over, and becomes a thick, distinct, and continued layer between the flesh and skin. This peculiarity attends the whale and other cetaceous animals. White remarks that the villain slug, that farmer's pest, which consumes the tri-

folium and young wheat in defiance of lime, tar-water, salt, the roller, and the frost, "endures the cold better than shell snails, because its body is covered with slime, as whales with blubber."

When sheep are upon turnips they should have some shelter afforded them. I saw, last summer, at Penrhyn Castle, some most serviceable machines for use on exposed situations, shutting-up, and running on four wheels, to which a horse is attached by hooks. They were made with wardrobe doors to open out, and with a small hayrack inside : a regular shed, in fact, and a right good thought it was. People enlarging on the statement that sheep do not need shelter, refer you often to the instance of the mountain sheep. Why, excepting during snowdrifts, no sheep are better off. See them in bad weather chewing the cud, snugly housed (and they always seek the shelter, too) beneath a rock or to the leeward of a broken gorse bush. A small farmer near this, who cannot afford much expense in the shape of such sheds, has ingeniously hollowed with just half a spade-cut a hedge-bank on each side of his driest meadow, which he keeps in rowen annually, and around which, too, he allows the hedges to be rather tall. I have seen magnificent lambs resting there as warm as a toast during a fearfully sleety raw March day. Don't tell me that they enjoy themselves under the circumstances to which they are often subjected by hard-hearted masters. Look at the poor creatures on that open there, within simply a net, burying their heads—as many as can—behind the soaked coarse hay in the dripping rack, which

affords a short screen for a few, their eyes shut resignedly, and their ears bent down, in the face of a cutting wind that must chill their very marrow, and a pelting shower which makes your pony wheel round in spite of you : weather that gives the old farm lady there a deserved ache in her dental periosteum, for leaving the flat hearth-cakes by the fireside to scold at her lord and lads, who have taken to thrashing in the barn. The many holes in the fences stopped by a hurdle, and hung with recent wool, tell of frequent attempts at a bolt, when the unhappy wretches have the spirit to make them.

Talking of shelter reminds one of dress. When shearing time comes you must have your flock well washed some days before the operation commences ; they should then be turned into a fresh, clean field, and be allowed to perspire freely for some days, so as to let what is called the yolk ascend again into the fibre of the wool, or it will make a considerable difference in the weighing. Keep the shorn fleeces, until sold, compressed together under cover in a dark place.

There is a question respecting the expediency of shearing the lambs their first year, which is usually done about six weeks after the aged flock. The Suffolk farmer will smile at this practice. The wool is greatly inferior, and consequently fetches less than it would if left to swell the yearling fleece. In this wet country, however, farmers find that the lambs thrive infinitely better, especially upon turnips, when they have had their garments shortened at least under the belly and along the thighs, as you will see

the coal-boy occasionally do his donkey. Ellman trimmed his old sheep thus, with a view to their being clean and cool in hot weather, a full month before the shearing time. Upon the same principle, certain it is that you must not expect to save so large a measure of your ducklings when you neglect to clip their downy tails as they first take to the water. At Rambouillet, in France, the experiment has been tried of letting the fleece grow on without clipping for several years ; the result of which was to show that if they can be kept sound they improve by accumulation, the fleeces of the sheep shorn for the first time in three years being equal in point of staple to those of three others which were annually shorn, and producing a larger sum.

FOWLS.

Mortimer—Game Fowl—Spanish—Dorking—Cochin-China—Cross-bred—Mr. Booth of Warlaby—Bantams—French Plan of getting extra Eggs—Geese—Turkeys—Care required in nursing the young Brood—Plan in the Western Isles—Crusoe-like Resources—Ducks : Aylesbury, Rouen, East Indian—Common Wild-Duck—Carrion Crows : Necessity of destroying—Gravel Walks—Tough Poultry—Henhouse and Nests—Broken Legs—Surgery, &c.

“THE countryman’s farm or habitation,” wrote Mortimer, “cannot be said to be completely stored or stocked without fowl as well as beast, which yield a considerable advantage by their eggs, brood, body, and feathers. Any poor cottager that lives by the highway-side may keep them, they being able to shift for themselves the greatest part of the year by their feeding on insects, corn, or anything almost that is edible by any other sort of animal ; and therefore they are kept to great advantage at barn-doors, or other places where corn or straw is scattered. As for cocks and hens, I shall not enter into a description of the several sorts of them, only advise you to choose those that are the best breeders and the best layers ; but no sort will be good for either if they be kept too fat. The best age to set a hen for chickens is from two years old to five, and the best month to

set them is February, though any month between that and Michaelmas is good. A hen sits twenty days, whereas geese, ducks, and turkeys sit thirty. Observe to let them have constantly meat and drink near them while they sit, that they may not straggle from their eggs and chill them. One cock will serve ten hens. If fowls are fed with buck or French wheat, or with hempseed, they say they will lay more eggs than ordinary ; and buckwheat, either whole or ground, and made into paste, is a grain that will fatten fowls or hogs very speedily, but the common food to fatten them with is barley-meal wet with milk or water ; but wheat-flour is better." So amusingly and shrewdly wrote one a hundred and fifty years ago, who would be eminent now-a-days as an agriculturist were he alive. Still information so indefinite will hardly suit the modern amateur. Then must our "prentice hand" essay the subject.

For myself, I have a partiality for the elegant *game fowl*, which, moreover, have the recommendation that they feed a good deal on grass-seeds ; leading a gipsy life more than any other kind ; encamping in the open ; concealing their nests, as the landrail, &c. The black *Spanish* have a charm with many, and certainly they deserve credit, if for nothing else, for the extraordinary whiteness of their immense eggs, being in wonderful contrast, whether intended or not, to the glossy black of their plumage. To the *Dorking* and the *Cochin-China* I have the same objection that I have to a musty gossip. They may be a very good sort of animal—profoundly maternal—a useful, hospitable, routine running class—but,

as I am penning my own feelings, I must confess my aversion to the sort. A serviceable cross for the table is bred between the Game and Dorking, of which I saw some magnificent specimens in the straw-yard of Mr. Booth, of Warlaby, about the only cross-bred stock he has about his interesting place. A *bantam* or two well chosen, black or golden laced, give a finish to the stable-yard—a style and stamp as the rim of plaited straw along the hunters' stalls. Curious, if correctly stated, is the plan mentioned by Richardson, whereby that ingenious nation the French get extra duty out of their hens in the way of eggs. We are informed that at an early period after hatching they hand over the young brood to the care of a fattening capon, whose services they enlist as nurse. The way 'tis done is this: the last-named unfortunate they catch and divest of his nethermost feathers; the denuded part they whip with a rod of nettles, and then turn him, smarting and affrighted, into a darkened room, into which they introduce also a brood of young chickens, not less than he consternated at being torn from their mamma. He looks, however, kindred, and they immediately make for him cowering in the corner, and, from instinct, crowd for refuge under his wings. By the close subsidence of the downy little fellows, the poor bird is so eased of his torture, that out of very gratitude he comes to behave towards them as the parental hen would. By the time his affliction is abated there is a sympathy established between them, and he has learnt to take a lively interest in his protégés, and performs for them with a will all the numberless

little offices, such as scratching for grain and grubs, chuckling to them to come and share, &c., which he remembers to have been done for himself in infancy.

As for *geese*, I abhor them; their cackling is abominable; their grease alone to be valued, as a first-rate specific for many purposes upon the farm, such as rubbing a hard udder, &c. Their meat is indigestible, and endurable only for the sweet apple slop's sake, in which it is the mode to envelope each morsel. During life, besides hissing at your horses' heels, and chasing you their lord and owner, every three of a flock will consume as much pasture as a sheep, besides spoiling with their dirt and feathers I don't know how much more, not to mention the green, muddy, unwholesome slush to which they rapidly reduce your stable-pool. But if you have a fancy for the like, most gentle reader—and I suppose that he may be reckoned a goose who has not—then, for the best sorts to begin with, you must consult Mr. Bailly, or Mr. Fowler, or some equally distinguished (if there be any) presiding genius of the clan. However, I can tell you that the sooner the better they commence laying in the spring, as they may then have a second brood. They will inform you that they are laying by carrying straw about in their bills as pigs do before rain, or when about to farrow. At once, then, thatch their nest over for them with a tent of straw. They lay twelve to sixteen eggs. They sit usually thirty days, but if the weather be fine and warm, you must not be surprised to find the young ones introduced a few days sooner. For a "*green goose*," you must take them a

month old and stuff them, keeping a little rack of fine hay beside them, which they will nibble at, and by the termination of the second month they will be ready for the table. Our plan is rather to go to an old woman who has hatched them under her bed, and buy a brood just advanced to jacket and trousers about stubble-time, when they will at once take to gormandising kindly on the sheaves' débris, and will be ready to kill by the time the fields are picked. Carrots cut small, or sliced swedes, alone will fatten them, or barley-meal and milk ; but best, 'tis said, of all, malt mixed with beer.

"But in fattening of all water-fowl," writes our sagacious friend, "you may observe that they usually sit with their bills on their rumps, where they suck out most of their moisture and fatness at a small bunch of feathers, which you shall find standing upright on their rumps, and always moist—with which they trim their feathers, which makes them oily and slippery more than other fowls' feathers are, that the water may slip off them—which, if cut away close, will make them fat in less time, and with less meat, than otherwise." "Tell that to the marines!" I hear an impatient comment. Well, I know but what I read, and I have presented you on purpose with the original text. With this weeping spring, then, and its incumbent plume, it may be as well for you to make yourself acquainted, if you be given to the nurture of geese. It is at least an ingenious adaptation of native produce that is surely worth trying. Midsummer, he tells us further, is a hard time for the constitution of the goose. Can

this be, I wonder, that little boys are then at home from school for the holidays ? And now, as I suppose you don't much care to go in for shearing and plucking geese, or half-roasting them before a slow fire for the sake of pâtés de foie gras, or, indeed, for the perpetration of any such kindred barbarity, we will, by your leave, say here, Good night to Marmion, and proceed upon the even tenor of our way.

But the turkey's "my darling, my darling, my darling !" White, copper-brown, or barred—they are a gentle, profitable fowl, not excluding the grand Turk himself, who slices magnificently at Christmas-time, if well foddered in life, and in death well carved. But the hen—so sweetly wanting in the long-tongued bombast of her Cleon-like spouse—if you seek to watch her to her nest, she walks so leisurely, with an air so ladylike and well-bred, so gracefully nonchalante, just pecking indifferently at the grass-seeds as she passes ; no vulgar cunning about her, no sly bucolic tricks ; one is almost ashamed to sneak along behind the fence and dog her to the retired spot, where she glides up noiselessly into the hedge, and, picking off the dry leaves with which she had concealed them from the crow, resumes her solitary guard in the far-off fence upon the fine, delicious, delicate, pink-spotted eggs, so frequently, alas !—unless removed to quarters nearer home—to disappear by the knavery of Reynard.

When hatched, if you find the wee ones pining, their dear little wings trailing helplessly along the ground, and their whole air depressed, then whip them up, and having conveyed them within the

bright kitchen, administer to each a small pill of ground pepper, bread, and port wine—some give a peppercorn in its entirety alone—and let it warm its feet in a spoonful of good whisky (they are so tenderly exotic). Next wrap them in some wool in a basket, and shortly they will be all right. This was taught me by a clever lady, who, during a kind of duty exile with her husband, who had charge of the dispensary attached to Lord Breadalbane's quarries in one of the Western Isles, had bent her gifted mind to the collection and combination, for culinary and household purposes, of the native resources of the island, after a most Crusoe-like fashion, which was intensely delightful to my school-boy feelings; flesh, fish, herbs, all treasures of the deep, the very flowers on the hill, all came to hand convenient for the manufacture of pickles, wine, preserves, or dyeing material, until, to one's hobble-de-hoy vision and appetite, her sanctum appeared an absolute Fortnum and Mason's dépôt.

For ducks, I suppose, the white Aylesbury and the brown Rouen are the most profitable to keep. The black East Indian (whose polished plumage, heaving as they bask asleep in the sunlight, glistens with a wet-like, sheeny look, that seems the very idea of the Pindaric *ὑγρὸν νῶτον*) I believe some find as paying as ornamental. Our own weakness (to which I recommend not the reader to lean) is for the native wild-duck. A nest or two of eggs are easily procured from the nearest fen and hatched under hens. When the young ones appear, mind and keep them under over with their foster-mother for some days. When

their feathers are sufficiently grown, catch and pinion one wing—that is, with a sharp knife cut off the end joint. Their offspring will be sufficiently domesticated for you to forego this operation. I love to watch them, about nightfall, wing their way around and round the homestead, their pinions whistling as they pass overhead to settle down again quietly as ever, as though nothing had happened, upon the pool, drinking up the water so enjoyingly, and coming at call to feed even from my hand.

They are small when dressed for the table, but their flesh is peculiarly delicious. Three-parts grown ducks are useful to turn into gardens or a turnip-field, where they will do good service by swallowing up the destructive slug and caterpillar hordes. Their nests of down they make under a heap of thorns, with which I have a high rocky bank beside the pool covered, or in a hedge not far away. They cover them so carefully with dry leaves when they leave them, that it requires a keen eye and some practice to detect them. It is best done—though that consumes time—by watching the duck return. While sitting, her bright eye will discover her, when you would not have noticed her plumage amidst the brown herbage—so much her own hue—wherein she has ensconced herself. Take the eggs when they have reached the number of twelve or fourteen, and set them under a hen. The duck will make another nest shortly. Under any circumstances she is a bad mother, leading her little ones at once to the water, which, oddly enough, is about the worst that could befall a young wild-duck domesticated; the hatch

getting rapidly thinned, and perishing oftentimes altogether from the combined assault of cramp, pike, rats, and an occasional, but invariably most voracious, crow, whose young, clamouring on their platform of cross-twigs in some neighbouring elm (they are very faithful to the same spot year after year if not got rid of), it is your first duty to destroy, if you have any respect for your poultry's welfare. An egg prepared by the chemist with a taste of strychnine, set out upon a wall in a field (where it must be watched) will infallibly attract and instantaneously tumble over the old birds. Mind you do this before you destroy the nest, or they will but remove a short way, and give you the same trouble again.

Let me conclude with a few practical hints, which I have bought by sad experience.

In the first place, beware of strewing the spar from lead mines as gravel upon your walks, for fowls will occasionally find their way where they should not, and will pick it up for gizzard service. It lacerates the intestine, they pine gradually away, and die.

Old fowls, as pigeons, may be used up, and found at least as palatable as the brood-hen of Wolf's Crag, if you administer a strong dose of vinegar to them a little before they are delivered to the headsman.

And, young housekeeper, know that if you would delight your grandmamma's heart with a devilled chicken leg of superlative excellence, let it be cut off the raw fowl to be dressed, and not be the remnant of yesterday's dinner. It is the second cooking that makes them obstinate food.

Keep your hen-house most particularly clean, and often whitewashed. The nests should be made of dry heather (*Erica tetralix*)—the badge, by the way, worn in the bonnet of the Macdonald—and small branches of hawthorn, covered with white lichen. (*Richardson.*) You will so cheaply save your sitting hens much torture: the effect of the frayed hoary bark produces a large amount of powder, which is as drops of stingo to the plaguy parasite, whose name is legion, that is ensconced within the feathers of the unhappy fowl, attempting to relieve themselves of which you see hens roll so in a dust-hole when they can. If by any accident—and accidents will happen in the best-regulated families—a fowl or duck should break its leg, having washed the wound and set the bone, a bit of elder twig, hollowed of its pith, and split, affords a capital pair of splints. For further information on this head consult *Ferguson's Practical Surgery*, and forgive me the bother this reading has cost you.

REAPING.

Crop dead ripe—Machine—Cutting and Stacking—Game in the Corn—*Trifolium Incarnatum*—Excellent Crop—Wheat, some cut before it is ripe—Flemish Practice—Wheat-stack—Avoid Risk of Rain—Norfolk Farmer's mode of Sowing Wheat—Rain on Oats—Barley.

FOR this, let the story of one field suffice. Because, presuming the weather to be favourable, the crop good and clear of weeds, there is, upon the whole, much of a muchness in reaping.

As a great treat, I had taken my little boy before me on the saddle, and had been cantering about the farm for an hour or more, one delicious morning, loitering here by the vetches to show him the lambs that, since he saw them last, had been put in business on their own account; here, to note what progress the swedes had made in bulbing; delayed again a long time at the corner of the paddock by the herdsman, to hear and see how the silky coat of the snow-white heifer Leila was improved of late, and to give my opinion on her chance of winning as partner to the roan Lizzy at the approaching autumn show; when, at last, we came to an outside field of wheat. It met the eye across the gate one waving sheet of golden red, almost dead ripe. Having been elsewhere occupied, somehow or other I had not seen

it for several days. We were to blame that we had not calculated better the rapidity with which the late hot suns would turn its hue. There was clearly no time now to be lost; so, putting the pony's head round, and holding the little fellow somewhat off the saddle with my left arm, so as to prevent his being strained or hurt, we made play to summon all hands, the dear little grey seeming to realise our intention by the pace at which she tore along the meadows, while the child almost shrieked with delight and laughter at being whirled along so rapidly through the air. Out upon the word, and with a will, came the reaper, under the strong impulse of the good-tempered bailiff's arm, from the barn where it had been standing ready put up for some time. The fastest team—a pair of half-bred horses—was attached. Three of the ablest mowers were sent in advance to clear a path for the horses to tread around the field, and a boy despatched to secure for binding, &c., what spare people he could in the neighbouring village. Two were all, however, that he could enlist so late in the day. But at eleven "by the chime" we were merrily at work. The tilting-board the smart hands took it in turns to clear. I had my share too. It is but first-rate exercise after all, requiring some expertness to begin with, but not nearly as hard as rowing stroke to the College Eight was. It is so satisfactory to see the sheaves glide off, delivered all handy and clean for the tying. "*Justo aristarum propriarum numero absolvatur,*" as mine enemy Aldrich has all but expressed it.

At what a pace and how unresisting the upright crop came down. It was a flat field of five acres, beautifully clean, and the straw not laid at all. So unsuspected and treacherous is the severance by those lightning-swift knives, that there was, after all, comparatively little seed shed upon the ground. This being our second year at the work, we were well practised, and so unremitting in our temperate haste, that we not only kept the binders amply busy, but by about sunset the machine had finished its part, and the whole five acres were soon stuck up in shocks. The waggons came. The stack-yard was, unfortunately, some distance away, but by our united energetic endeavours—for our blood was up now, and our honour staked upon it—against eleven P.M. the corn was all stacked and ready to be “run over,” as is technically said of the thin covering it is advisable temporarily to lay upon the rick previous to the regular thatching, which should be deferred until the imprisoned sheaves have settled into shape. In this case a light band of thatch, made by a machine on wet days during the winter, and stored in rolls suspended ready in the barn above the reach of rats, was bound about the crown of the stack as a protection against possible rain; for though the lightness of the dew was lucky for our carrying, protracted so far into the night, we could not but regard it as ominous of a change of weather. The horsemen took their teams meanwhile to the stable, where they were indulged with a double feed. All finished about the stack, the other men came soon and sat down right joyous about by the saddle-room, to

regale themselves to their hearts' content with bread-and-cheese and beer.

But how exciting was the scene as the parallelogram in the middle of the suffering field grew smaller and smaller with each succeeding cut! Whirr now went a partridge, then another, and another, or a rabbit popped out, only to bolt back to its covert at the sight of the binders around. Anon a hare stole by, indebted to her speed for her escape, while an occasional pheasant rose on startled pinion, or came running along the line of standing corn almost within reach. Then, as the plot grew narrower yet, the "bunnies" dared, or rather were driven to the extremity of flight, but foundering over the scattered shocks and stubble, the event was that not one escaped. As the machine swept along on its final course there were some nine couple laid out on the ground.

To finish that field's history. Within a week from the carrying the surface had been scarified, harrowed, and rolled, and *Trifolium incarnatum* sown. With the first shower a dose of superphosphate (four hundred weight to the acre) was administered. A goodly sprinkling of wheat came up, too, serving for shelter to the young plant; so that it became a right acceptable fresh bite the succeeding March for the ewes with their young offspring. Fed down by them, I allowed it a short period to grow, and then brought them on again. Once more with busy tooth they chased away the serried stems, and the surface was quite—this time it seemed most hopelessly—bare. It was all over now, I thought, with poor tri-

folium ; but no—up again it sprang, and was at length allowed to grow to maturity. Just as it came into flower we began to cut it for the stable, cows, &c., and I never had a crop upon which they thrived as well. It was a treat to see them rush to the heap of blood-red blossoms as the herdsman pitched it off the cart into the “cratches.” It lasted the whole stock until the end of June, and in July stubble-turnips succeeded to its place. Here I would add that many good farmers cut their wheat at least ten days before it is ripe. The sample thus secured (provided the weather be favourable, whence it is a practice that can seldom be ventured on in the green western districts) will exceed all others in fineness of grain ; nor is anything lost in the measure. This practice the Flemish are fond of with all seeds.

A wheat-stack put properly together, even though unthatched, will shoot off the rain, running little risk of being wetted down even by a heavy and continued shower. Notwithstanding this, let me advise you not to attempt playing tricks. Get the rick as soon as possible under cover. Wheat thrashed from the stack is brighter than from the barn. In calculating the contents of a wheat-stack, you may in an average crop look for three pecks to a bushel per cubic yard. When you decide upon taking a stack in, make provision to finish the job off without delay. Never risk the leaving a stack open to the weather. A singular mode of planting wheat is mentioned by Young, as practised with so much success by a Norfolk farmer that he shortened in

consequence his horse-power. He was wont to hoe in wheat-seed at the second hoeing of his turnips on sandy soils, taking care to feed them off early in dry weather.

There are those who like a shower or two upon their oats in the swathe, as they consider it improves the weight and size of the grain, while the straw is thereby induced more easily to part with the corn. The same, but in a considerably lower degree, may be said with regard to barley. Beware, however, of carting home either in damp weather, for the mow will heat, the grain will be discoloured, the straw musty, and spoilt. Barley catching too protracted rain is apt to sprout; so that upon the whole, although maltsters esteem it their gain if the crop escape a shower, fair weather throughout the harvest is to be devoutly hoped for.

THRASHING.

Mortimer—Boxted Lodge Feat—Arrival of Apparatus—Process of Thrashing.

“I WISH some better methods” (plaintively wrote Mortimer a century and a half ago) “were found out for the thrashing and cleansing of corn from the chaff than is.” How he would applaud, were he alive now, and could hear of the celebrated Boxted Lodge feat of reaping a field, thrashing the seed, grinding it, making it into bread, and re-sowing the land—all, too, within a summer’s day!

But to come down to our humble homestead. It happens that straw is wanted for chaff-cutting, and grain for the mill, so we send off Ned upon the pony to see when we can have the machine. There are several in the country : they travel from place to place as they find work. It is to be at a farm two miles off to-morrow, and the day but one after we may fetch it about sunset. Well, the intervening days soon follow on their ancestors, and the teams have been despatched for the machine.

They have been gone some hours. There has been some unexpected delay, I presume, for the shades of night have descended, and yet there is no sign of their return. I pace about the avenue to the stack-yard,

for it is an important time, when the head should be at hand to decide—that plaguy great item of all life's usiness.

At length a rumbling noise ; nearer and nearer. They are in the road outside. "Easy now, a moment ;" there is a sharp turn through the gate, and that iron-bound leviathan is hard to manage. They have taken the sweep that is allowed them, and now in they go—crack—up a slight ascent. "Doctor—Victoria !" Wey ! or the gate-post will suffer. "Wey !" and the dear docile creatures arrest their step and draught upon the instant, in the full swing of their exertion too, gentle, tractable as sheep. "There now, my men, be quick with a helping hand to the wheel." "All clear, sir." Crack goes the whip again, but so as not to touch them. "Doctor—Victoria !" and with an impulse irresistible the lumbering apparatus has been swept through the gateway, and is advancing steadily upon the sward beside the stacks. Now is the time for the head to be about, or the work will be left to eat into to-morrow's day. "Here, fix it here ; there, that will do." Now the boiler is coming ; the water has been left in it, the distance being short. It follows safely, without hurt to the gateway. "Gently there, you are too far. Now, engineer, just look where you will have it fixed." "Back," he orders, "we must have it back." "Back, little mare." The leader is unhooked. "Back, mare," and the little willing thing leaps into the air, angrily shaking her head at the fruitless effort. "Now, lads, we must help her," and the strong willing bailiff seizes stern hold of the

wheel. "Back, all," as the men close to. "Back, my pet, gently; there, soothe her with your hand." The little spirited thing is absolutely champing her bit with evident vexation. "Back, gently," and the wheels go round. "Now, with her with a will." "Too far again—easy," but it is too late. "That won't do; it must come forward a yard," exclaims the engineer. "Now, all; up, Star!" and the plucky cob springs to her collar, quivering as every muscle strains to utmost tension. "Up! that will do." The two tons have started to their place on the heavy sward, and the small mountain mare stands trembling with the over-exertion, but undismayed, and champing her bit, and affectedly snapping at you if you dare to smooth her neck.

"It shall not be again, my pet," I say; "they must have a heavier horse in the shafts next time."

"That's a beauty!" approvingly exclaims the attendant, as he pats her panting side and neck.

"You'll not match her in the three counties," proudly chimes in the bailiff. "There now, be quiet"—as, with her little ears laid back, she snaps at him saucily—"will you? You're worth your weight in gold, you are, my darling, and no mistake."

And now the teams are parted and go off to feed, and the engineer fits the strap, and two hands have fetched the coal, and another brings the water-tub, and soon all things are ready for the morning.

"You'll bring four hands down?" I remind the engineman.

"All right, sir."

"Very well, then, I'll have eight others ready."

"Now mind, boys, be smart to your work to-morrow morning," directs the bailiff, as we cruise off leisurely, and leave his part to him to do.

Again behold the "saffron morning," Tithonus rubbing his eyes, &c., as the poet has it.

The men are betimes at the farm, and, under the active superintendence of the bailiff, have been getting out the sacks, putting a sheet under the machine to catch what corn may fall through, stripping the thatch, &c. The fireman has been there, too, from a considerably earlier hour, and has the steam up, and is all ready to begin. A couple of men mount the stack with pikes. Two more have got upon the thrashing-machine, and the others are ranged about, one to tend the sack into which the grain runs, others to clear the straw, build the new stack, &c. Whew! shrilly challenges the whistle—whish-ish-sh-sh-ish storms defiantly the spare steam underneath, indignant at being so discharged. Whew! again; paff—paff,—round goes the fly-wheel, ditto the long band—puff—puff—the game's afoot. A frantic fit of energetic action—glows at once the busy scene—clatter, gallop—clatter, gallop—whistle—whew, wheew—clatter, gallop—clatter, gallop—sheaves descending, straw upmounting, dust in clouds, men begrimed—eat with one hand, work with the other—clatter; gallop—clatter, gallop. Eh! what a jolly rapid job! and such a contrast to the old dawdling day after day, utterly, in every sense, unsatisfactory flail-work. How it's done is this. Imagine the guards atop, precipitating sheaves into the feed-opening, just

ripping off the band from each with a knife, as they get them hurled in a shower from the stack alongside, and delivering them to the devouring jaws of the rattling volcano below. The best grain, meanwhile, is pouring into a sack, hung up against the side of the machine, the inferior being delivered at another opening, while at the foot behind the straw is being vomited forth in rapid armfuls, far cleaner thrashed than it would be by the flail.

"A famous sample, sir; the best I've seen this year," with an air of approbation and an eye to beer, remarks the man in charge of the bag, as I approach for a moment from my perch upon the ladder-step, where, newspaper or book in hand, as an occasional resource, it is best to remain a good part of the day, as a check upon the hireling legionaries, who will idle if they can, it being part of their system, and the bailiff, on a busy day always seeming to prefer to go in and help; though I believe the case of a man attached to labour—as the one I am fortunate enough to have is—is rare.

To dispose of the straw issuing behind, there is a wooden trough set up slantwise on one side from the tail of the machine, having a cylindrical bar across each end, around which runs a double belt, all stuck with long iron spikes, like a mastiff's collar. This being put in connexion with the machinery, the moment the engine is off the band begins to revolve, catching the heap of thrashed straw as it is poured forth, hurrying it up the trough, and throwing it out atop on to the stack, which two hands begin to build.

Time and steam will wait for no man, and so, with a short interval for dinner, the earnest work proceeds. Men and boys, ducks, chickens, pigs, and a dog or two on duty to look after the mice (which will, somehow or other, get into stacks, being probably for the most part transported thither in the corn-bundles from the field),—all are busy as bees.

And now the last close-matted, hot-pressed sheaves are pitched into the well; the guards draw breath as they feel that another day is done, carefully wiping their eyes, which are almost closed up with the dust, and smoothing round their necks, so rough from the chaff-cloud in which they have been toiling; while the sacks are being shaken into shape and solidity, and their necks tied up, as the haulier starts for the horse and waggon to convey them off to the barn-floor, or, if for home use, to be measured at once into the granary-bins. Then a boy rakes back the chaff, and another bundles together the grain deposited in the sail upon the ground.

The thatcher meanwhile has been busy getting together the spars from the pool, where they were put to soak, so as to bend without breaking, and the rolls of ready-made thatch from the barn, as two or three others pull the stack into shape. And now four men are up on the ready ladders, and at once the handy strips are rolled out along and tacked in a trice to the sloping side of the roof, one over the other, as tiles—for the lurid light across the western horizon shows that we can put no faith in the morrow.

To finish, the bailiff's wife comes mysteriously

laden with a basketful of logs of bread-and-cheese, while her hopeful follows in her wake with the beer-can, so that all soon arrive with ourselves at the grateful conviction that a most important turn has been taken in the affairs of the farm :

“ When the fiery fight is heard no more,
And the storm has ceased to blow.”

HOW WE MADE OUR HAY.

Meadows shut up in February—How treated—Mowing Machine—
Nettles—Thistles—Trial of Machine—Failure—Knife sharpened
—Consequent Success — Hay-tedding — Wind-rows — Summer-
cocks—Middlesex Plan.

WE had turned out of the meadows intended for hay on the 2nd of February. The ewes had run upon them up to that time, having night and morning a few turnips and a handful of corn each ; the troughs being moved every third day, until every part of the field had been gone over by squares, and was thoroughly well dressed. The flock was not, however, folded or confined by hurdles to the particular spot, but usually lay about the troughs, unless driven to shelter by the weather. Previous to this treatment, when I succeeded to the farm, I was informed by the last occupant that off one of them a hay crop could never be got. It had been made up in a great measure by the union of several small (fallow) crofts, the fences having been pulled down, and the natural herbage that sprang up allowed to overspread the surface, without any attempt being made to lay it down in seeds, a good portion being suffocated by a thick carpeting of moss, fitted only for the pasture of a reindeer.

Immediately upon the hint I acted. A team of strong horses attached to heavy harrows, newly sharpened, were set to tear the surface this way and that way, until it looked as if a cart-load of wild bees'-nests had been rent and scattered over the surface. A quantity of renovating seed, being a judicious combination of such clovers, grasses, &c., as ought to be the texture of a pasture with a view to butter and beef—supplied to me by Messrs. Sutton, seedsmen, Reading (10 lbs. per acre, at 9*d.* per lb.)—was then sown over the whole field, being driven home to the fresh soil through the persuasion of a heavy frame, stuffed dense with short, prickly black-thorn—in agricultural parlance, “a bush harrow.” It was finally rolled down smooth and close by a Crosskill’s crusher sent twice across it, different ways, and a plain roller once when the ground was pretty soft after rain, all sticks and stones having been carefully picked off. To be deprecated is the easy plan, so commonly resorted to, of attempting to press down such obstacles into the ground with a heavy roller. In a county where, as in many (but these usually are fallows), stones are courted for the sake of preserving due moisture in the soil, it may be needful; but in ours (a limestone region) I regard each such fragment and pebble as an intruder, to be warned off from occupying the room of so many blades of good grass, not to mention the hurt that may occur, from their sudden springing up, to the knives of the mowing machine. You cannot be too particular in the picking. What damage does happen to the knives is caused mainly by the smaller pebbles, not much

over marble size, getting between the finger-guards. The bigger stones throw up the framework bodily, so that the knives escape, but it is at the expense of a swathe mown far too high. An old encampment of nettles in one spot—as usual a rich dry loam—as it sprung up afresh was vigorously beaten into tatters with rods, and salted until it disappeared. This pickling is the only way I know to get rid of an obstinate weed, which, however prized for the dye its root yields, however palatable boiled to the old village lady's winter pig, is not to be affected on a pasture. Some root them up by dint of painful labour. My plan acts upon the principle that a bruised limb will mortify, communicating its morbid matter until it kills the sound; whereas a limb clean cut off will heal, and leave the body else unimpaired.

The first drizzling day a strong dressing of guano (the speciality of guano is to improve the upper growth of leaves, not bulb) was applied, which the rain beat down to the roots at once. The gates were then closed, and the meadow was left to its repose.

Thistles, by the way, the common running perennial sort, whose roots spread wide and deep, should be plucked up in damp weather, by careful hands well protected by thick leather gloves, or mown down when the stem is stout grown, so that water lodges in the hollow pipe and kills the plant. After all, this is uncertain, and it is difficult to name an effectual cure for the pest. It is singular that wherever sheep pasture thistles will spring up, as groundsel always has a passage taken in manure purchased from the

cottager. To return, however; our reward for this recounted treatment was a luxuriant crop of waving grass, over which the wind ran coyly, waking shadows where the light fell even as young love does.

The young farmer should study the grasses, they are so easily discernible; in fact, he ought to devote a few dozen half-hours to the study of general botany, with the help of a microscope; it will pay him well to do so, not to mention the amusement it affords.

"Two tons to the acre, sir," remarked our pleasant apple-cheeked bailiff, as he would advance (scene repeated at least weekly) some ten yards into the field, ourselves meanwhile meditatively leaning with arms akimbo across the top bar of the gate. "You'd better let us have it down, sir; Fred and I and Grubney and two others, we'll have it down in no time." "Oh yes, Fletcher," we reply, almost provokingly, if his temper were not so charming; "as if there were not plenty for Fred and Grubney and you to do elsewhere, horse-hoeing in the mangold-field, turnip-thinning, and the like. Do you remember last year?"—"I do, sir." "Well, do you remember that saucy tramp who took this field to mow, and who didn't come for a fortnight after he had promised, and then brought only one other man with him instead of a gang, as he had engaged?"—"I do, sir." "Do you remember how he lay down in the middle of the day, and wouldn't work a stitch when the sky grew all over mares' tails, and the barometer trembled in his shoes?"—Again, "I do, sir." "You remember how I had to come to words with him about the bargain, and how we found when he was

gone that he had robbed the nest of the turkey that was sitting in the fence?"—"I do, sir," imperturbably replied my old and valued antagonist. "Well, Fletcher, that very next Christmas (that is, the last), when I went up to town to get my eye in at the Baker Street Show, after due consideration I invested in a machine."—"A machine, sir? It'll never answer here, you take my word for it." "Well, Fletcher, if I needed the assistance, I should like always to have a name as satisfactory as yours to back my bills, but in this particular instance I think you are off your score."—"You take my word for it, sir, Fred and I and Grubney would have it down in no time; long before the machine." And a look of self-reliance, not unmixed with something of contempt, passed athwart the brave man's mien. "However, Fletcher, it's all up. I ordered it, and it's at the station now, so you must send for it to-morrow morning."—"Well, sir, I hope it'll answer as you've got it, but it can never stand against the scythe, you may take my word for it," he replied, with a tone of resignation, and seemed bent on moving on. "I know you do, Fletcher, and if all the men one meets with were but the tenth part as good as you, one might be inclined to see the machines at Hong-Kong. But as all, unhappily, are not as you, but rather the reverse, and we cannot afford to lose the season continually, I must fall back upon this artificial help."

The machine was fetched the next day, and a paper, with full printed particulars, having come by post, I thought to have unpacked and put it together

in an hour. Mine ally, the pleasant, gossiping, village carpenter, whom everybody abuses and everybody employs, was called in for the occasion, straw basket, tools, and all. But when we came to work, notwithstanding the clear printed directions sent down, it took us the whole evening to set it up. Brisk, thoughtful employment was it, from dinner until dark, upon a summer's day. In the morning we were up betimes: in fact, I had myself been able to sleep but a broken sleep, off and on, with startling dreams, as though one had supped on nuts.

It was somewhere about two o'clock when I arose and woke the bailiff, who lived in a cottage on the premises.

A few moments only elapsed when out he came, blinking, and shaking himself, and rubbing his eyes, but as good humoured as ever.

Sending him to tackle the horses, for I was anxious to surprise the men at their coming, I betook myself to the barn, and ran over every fitting with my eye carefully, to be sure that every requisite was there—oil, straps, the screw-driver, spare wire, soap for the cogs, &c., &c.—carefully, so that nothing should be wanting at the last minute. The machine we found, upon trial, rather wide to pass through two of the gates, and we had, consequently, to take the posts up, and draw it through ourselves, lest the horses, by an unfortunately impetuous movement, should smash or strain it. All this unfortunately took time. At length, however, we stand within the field. The horses are hooked on: it is past four o'clock, and quite light. The machine is so independent, there

is no mowing before it required : it is to advance into the crop, and cut away at once right through, encountering on its return journey what had been pressed down by hoof and wheel in its advance. "Are you ready, sir?" (I had mounted the driving-seat myself.)—"Yes, let go the horses' heads, but just walk alongside for a moment till we see how it answers." Off! drop—down goes the cutting-bar; but, in a moment, drag—tear—stand—stop—the near mare half rearing from her vain exertion, and the machine most decidedly, emphatically stuck! Behind us there is half-a-foot's breadth, not cut, but absolutely torn up, as it were, from the roots in handfuls, by the vengeful steel fingers projecting from the bar to protect the knives. "What can this be, sir?"—"I'm sure I don't know; there is something wrong, clearly. It must answer, rightly handled. It has answered elsewhere; and what others have done by fair means, I don't see why we should not do. Let us look."

By dint of coaxing and scolding, and tugging at the wheel, we manage to make the horses, who clearly don't half like it, put the implement back from its entanglement. We lift the bar, then, above the grass, and move a yard back—it is easily done now—from the place. The knife flashes to and fro, working admirably, and no mistake. "What can it be? Let us look at the knife, sir." And the man stepped within the frame to inspect the cutter. "Gently, there, you'll have your fingers off," and I raised a handle. "There, now it's out of gear."—"It must be the knife, sir; it's quite dull." "Would your

scythe cut so dull as that?"—"Certainly not, sir." "Well, then, let's have it out." Dull enough it was, most certainly, and daubed with a coating of white paint. But for something of intense faith and something of undue haste, I could never have attempted to use it so. So, somewhat sadly—at least, on my part—we unhitch the horses and draw out the knife.

It is getting on to six o'clock, and one or two of the men have arrived, and are peering into the formation of the enemy with something of quiet exultation, screwing round, when they think my back is turned, and pulling a half-face at the terribly trampled grass that lay around the humiliated monster. Angry enough, I despatch a boy with both knives to the nearest forge, which was kept by a semi-blacksmith, semi-wheelwright, with directions to sharpen them as keen and as quickly as he could. This he did, but the hours they were away seemed almost an eternity. Now at length they are brought back, and keen enough in all conscience. It is now quite ten o'clock, an hour by which I had intended having half the field down. Alas for human hopes! There is, however, nothing to be done for it but "pipes and resignation," as Warburton remarks of a dull day on the Nile.

We return to the assault. The machine is backed some five clear yards farther, and the sharpened knife replaced. The horses are re-attached, and I condescend to allow a clearing to be made with the scythe in the surrounding trampled grass, so as to give the machine a fair chance, lest it break down superfluously, and thoroughly damp all parties. "Are you ready, sir?"

—"Yes." But oh, I did not say how nervous, I did not tell how hard I felt my heart thump as down went the cutting bar with the horses' second step. Round go the fans again, rattle—wish—rattle—we are advancing; hurrah! sure enough we are advancing! Fletcher stalks silent beside the team, and as I dare to turn my head there is a track, not trodden down, not torn up, but a smooth broad stream of unmistakeably shorn grass, fallen, spread out as it fell, with its face to the foe. It is my turn to glory now, but with the prudence of an old hand I refrain, and "the boldest held his breath for a time." The rustics have followed from curiosity, and are clearing it off with their hands to examine the work done. "No mistake there, Fletcher, is there?" I challenge, as I pull up the horses for a moment. "None at all, sir; it acts beautifully." "Rather high cut, is it not!"—"It is that, sir; but we mustn't complain." "You could beat it with the scythe, eh, Fletcher?"—"Yes, sir, we could; it would have no chance with the old fashion, would it, Fred?" Fred responds only with a leer, and moves off. However, now, after one cut round a good-sized square plot, I found that I could manage very well by myself, so the men were despatched to other employment, to cut and carry vetches, to the mangold-field, and elsewhere.

The machine went now famously without a stoppage. At each corner we drove out clear, having then to back partly round, so as to be square with the next cut. I took this opportunity occasionally of oiling the bearings. We got on now smoothly enough, so that by dinner-time there was a good broad plot

fallen. The day had been burning hot, and the poor horses suffered much, as I soon found that the faster the pace the better was the cutting. They were accordingly changed, and left for an hour or two to refresh themselves, so as to take their turn again later on. Although the crop was thick, the sun's rays had been so piercing, that at about two o'clock a boy was sent to work the tedding-machine over the part first brought down. The secret of working this machine is to work it across the wind. The horse is by no means so exhausted that way as when he has at one time to advance to meet the air, and has his back to it on his return, being thus overwhelmed and well-nigh suffocated by the thick heap descending over and in a great measure gathering on him. The quicker move the wings of the machine the higher goes the grass, so that if there be wind, as we always devoutly hope there may be in haymaking time (provided only it follow the sun), every blade and particle is flung out separate; each mass is scattered as a heap of feathers; no clouts of damp stuff left—such as human haymakers always have—to fire or unduly heat the stack. Curious is it to watch the effective process. A darkening lump shot up by those remorseless fangs—returning from their high aerial flight, there rains down, as a mosquito cloud, a shower of drifting blades and stems half withered. Thus, the greater tufts that had lain so flat, after a soar in the air and sunshine, falling, dissevered, in and about their dry, warm, shrunken fellows, an equable temperature is soon spread throughout the mass. Hay-dealers, for this reason, will give always

a higher price for hay made with the machine. When the lad has turned a few acres, for it is rapid work, he then leaves it awhile, his horse being well content to get a few mouthfuls by way of change, and fetches a change of horses for the mowing-machine. A couple of hours before sunset all hands appear, and a leader, rake in hand, advances across the earliest cut portion of the field. With left foot foremost, he then lightly gathers to a roll just over his right foot, about the breadth of hay that in mowing the sweep of the scythe takes—that is, some four to five feet. The next man striking in with his rake on the second blow of his leader's, takes his gathering from just under the roll left by the first rake ; a third then in turn follows him, doing exactly the same, and so on until the whole number is exhausted. It must be deftly done, and the space between the rows be raked quite clean, no disfiguring stray locks left to spoil and discolour either themselves or the patch they lie upon. When the opposite side of the field is reached, the leader turns, and changing his rake across him to his right, commences a row back again. His companions, taking him up in turn, follow as before, until at last the surface of the field lately strewn with the tossed hay, presents the appearance of a number of light rolls, or "wind-rows," laid parallel at intervals of about four to five feet. The process now is to start again all in a line, each at the head of a roll, which he is to catch with his rake, and just turn lightly over on a heap, then breaking off some few feet on the other side to turn it back to meet. So with but a couple of touches he has left lightly

upturned, or lapped over, a tuft of hay about three times as big as an ordinary straw beehive, through which the wind and sunny air may circulate, and in which a shower can effect no lodgment any more than in the chip roof of a sawyer's shed. "Lap-cocks" they are appropriately termed in Ireland; "summer-cocks," or "grass-cocks," this side the water. It is a clever, clean-handed process: just this way and that way, and the roll of hay is snapped off and upraised. It is by far the safest form in which hay can be drawn up to await the charge of wet, if unfortunately it should happen to interrupt affairs.

And in the morning, when the sun has been up a few hours, a veritable hot hearth is the intervening space, whereon to spread the summer-cocks again for a baking, as will be explained just now. It will, perhaps, be better here to recapitulate and enumerate in close succession the operations requisite from the mowing until the carrying. Supposing, then, that you have no mowing-machine, but have been fortunate enough to engage a strong gang of men, it will be time enough for you to commence cutting with the early dawn. You will then have several acres cut down by the time the sun is high enough for the other hands to spread the swathe—that is, about nine A.M., when your own men will have finished supplying vetches to the stock, looking over and shifting the sheep-pens, feeding the pigs, &c., &c., and their wives and daughters can join them, having attended to their household duties. At nine A.M. let them begin to spread about, as uniformly as possible,

with pikes and rakes, the swathe left by the mowers, which is to lie so exposed to the sun's rays until noon, or at least until it looks dry enough for the tedding-machine to commence. Much depends upon the sun and the thickness of the crop. If you have a mowing-machine you are enviable; you will run no risk of being disappointed by a gang's appearing in fewer numbers than you bargained for, and you will be so far better off that, when the hour of nine A.M. arrives, you will not want the spare hands to spread, the crop being all left abroad by the machine, so that the workpeople can go on with the turnip-field for the half-day.

Keep the mowing-machine at work, changing horses every two and a half to three hours, and occasionally the driver. In the afternoon you make into rolls and cock, as stated before: to be systematic, however, on the Middlesex plan, which, being undoubtedly the best, we have always adopted:

1st Day.—The mowing having begun at three A.M., tedd twice over, if possible, during the day all cut before nine A.M.; towards sunset making it into summer-cocks, to be left until morning in that shape.

2nd Day.—As soon as the dew is off the open space shake out (if in swathe), and tedd all mown after nine A.M. yesterday and before nine A.M. to-day. Then with their rakes and pikes let all hands get under weigh along the summer-cocks. Taking every six rows, they are to throw them together on to the space occupied previously by four, so that when all the cocks are spread, the field, instead of being dotted over with small heaps, will be all

ribbed across with broad bands of faded grass, about six to eight yards wide, called "staddles," with vacant intervals of about three to four yards each between. Turn these bands once gently with the machine, if the seeds be not too ripe, else they will shake out, and if there be not a superabundance of small clover and trefoil, the leaves of which fray away too readily as they dry. In that case, turn gently with the rakes and pikes. Tedd again the portion spread from the swathe the first thing in the morning, and then go to dinner. Phœbus, meanwhile, will be doing much for you in the pride of his splendour, so that when you return from your refreshment you will have to rake into broad rolls the bands into which the grass-cocks of the last evening had been laid out. Then rake the fresh-tedded portion into wind-rows to be lapped into summer-cocks. Then make the broad rolls into large or "bastard"-cocks, each one holding eight or ten times the quantity of the summer-cock. Finally, put the wind-rows into summer-cocks.

3rd Day.—Tedd the grass cut after nine A.M. yesterday and before nine A.M. to-day, beginning with yesterday's. Then throw out the summer-cocks into staddles. Then sticking the pike in lightly, upturn and just open in a broad band or staddle, to disperse any damp it may have accumulated, each of the bastard-cocks in succession. Next turn again these opened bastard-cocks; then turn the band of spread out summer-cocks; let one or two now prepare the base of the intended stack; it should have a strong thorny pillow overstrewn with

straw to keep it well off the ground, and preclude the ascent of damp. If the weather has been hot throughout, the hay that was in bastard-cocks last night will be fit to carry. Have out the horse-rake then, and drive it together in huge rolls. Let the carts and waggon then come forth. Two strong men pitching can keep a waggon and two carts going, if they have to travel, as is likely, a few hundred yards to the rick-yard. While the carts are coming, the pitchers, with their pikes against their middle, just as a breast-plough is pushed, run the stout rows left by the horse-rake into large cocks, into one of which, when the conveyances arrive, sticking their pikes together, with a simultaneous lift (one passing his pike handily under the other's as they deliver it), they land it bodily into the waggon, under charge of the driver, who has mounted to dispose the load duly about.

If the weather have been only cool and cloudy and the crop thick, especially if there be at the bottom any quantity of the plantain-leaf, it will probably not be fit to carry. The spare hands are then to rake into double wind-rows, for bastard-cocking, the bands of outspread summer-cocks; then to build into yet larger cocks, throwing together some three or four, the bastard-cocks of last night, taking care to rake up clean the sward between, depositing the rakings on the summit of the cock. Then get the double wind-rows into bastard-cocks, the fresh tedded into wind-rows and summer-cocks, as on preceding days.

4th Day.—Carry the large cocks: with the rest,

proceed systematically as before. To preserve a uniform green colour, "the bastard-cocks, previous to their being carried, should be put up in the heat of the day, and remain in that condition till the following morning, when they must be turned and opened so as to dispel any damp that might induce it to heat in the stack, and in that way spoil the colour." (*Middlesex Report*.) An oblong stack twenty-four feet by fourteen is about the most convenient size and shape, and best allows a certain circulation of air. Many will consider such small. The hay should be stacked, as far as may be, during the heat of the sun. Upon the stack there should be a person who understands the art of building hay, and a sufficient number of helpers to assist in spreading it and treading it well down. In building, the middle of the stack should always be kept well up, something higher than the sides, and during the leisure periods the skilled men employ themselves in pulling the sides and ends into shape. Overhead there should be a sailcloth for fear of sudden rain, the draught under which at night much helps the making of the hay in the mow. The sail should be kept quite clear of the sides, else, should continued rain come, you will have not only your sail rotted, but a gelatinous deposit of bad stuff two feet deep around the stack. Chimneys left in the middle to prevent overheating are to be eschewed, as the moisture being attracted to that point, the hay around them gets mildewed and spoilt. As soon as all the crop is piled, the stack pulled and topped up, it is left till it has sweated, and is perfectly settled,

which is generally the case in about a week or ten days. It is then thatched, a sufficiency of straw being used, and care being taken that the roof is dry, or, in either case, the hay will be mouldy at top. Hay may be put together in a barn a day sooner than it would be safe to stack it in the open.

Barns once erected are a great saving even in dry seasons: in wet seasons, the ready assistance they afford is most valuable. The quality of the hay, when fairly dealt with, suffers not in the least, as many have supposed it would. With wind and weather favouring, I have never failed to carry on the third day hitherto, nor have we as yet made "toffy," as our men term the mow-burnt, brown-sugar-tinted stuff that some over-eager farmers build.

The great thing is to make sure of the continuance of a few fine days, which always come periodically in unmistakeable parcels. Have the hay ready early in the season, and you may choose your time for cutting, provided you are the owner of a mowing-machine. If you depend upon a gang of itinerant mowers, clearly you have a precious time before you, what with broken promises, a strike for higher wages just as the weather threatens, &c. I know from experience how wretched a farmer feels under such circumstances. The independence, and consequent comfort that the possession of a machine gives, is worth a nugget. The only disadvantage attending the use of it is, that, if unfortunately rain catch you, then the grass being spread about is not so safe as when left in swathe. Against this you have to set the rate at which you can progress, which should,

ordinarily, unless you be very dull or very imprudent, enable you to choose your opportunity of cutting so as to keep clear of rain.

“A very quick mode of making hay is practised in Saxony, and it is this: the grass that has been cut down during the day is put into large cocks late in the afternoon. A strong fermentation soon ensues, which continues all night until the morning, when the workpeople return to the field, by which time the cocks have contracted very much in bulk, and the steam rises briskly from them. They are then scattered upon the ground, and allowed to remain all day exposed to the sun and air, and by the afternoon the grass has become so dry and won into hay as to be fit to be stacked, for which purpose it is gathered from the ground and carried home. This mode of haymaking might be followed in this country, provided we could trust our climate as the Saxons do theirs; but here the next morning may prove rainy or even damp, and the fermented contents of the cocks would inevitably be rotted.” (*Stephens.*) When the hay has been all carried to the rick, the horse-rake is driven over the field, and the rolls that gather serve to top the mow. Undoubtedly, the best practice, then, is to give the shorn field a top dressing of dung, if you have it, or guano. Nor should you turn stock into the aftermath until it have grown some inches. It will require exceeding judgment to decide upon the fitting time, for if you leave it too long there will be a great waste from the cattle trampling it, and if you use it too soon the bite will be insufficient to keep up their condition.

Here let me adjoin a few general hints which swung adrift above, but which will do to follow. First it is requisite that you should consult the weather before you venture on the hazardous operation of haymaking. The barometer is not worth twopence as an authority, unless you consult it in conjunction with something like Admiral Fitzroy's rules. There are many safer indications than it yields. Anyhow, remember always that "fair weather cometh out of the north"—at least, such as you require for this delicate work. Trust not the soft insidious west wind, but when the hard-hearted north-east invades our land from its career over the Russian steppes, then order out the mowing-machine, at least with security, if not in comfort.

If, unexpectedly—as sometimes it must the most provident folk—the rain catch you after commencement with a gang of mowers, leave what is cut in swathe (after the machine, summer-cock at once what is cut if the weather show doubtful, and then arrest its onward movement: better lose the time than the sugar off the hay); if, however, as must sometimes happen to some, the grass be in swathe when the clouds begin to pour, leave it so; just turn it with rakes before the under-side grows yellow, supposing damp weather to continue. So it will cure much in two days, and will require not much tedding when the weather becomes fine again. Hay so made will retain a fair but not first-rate colour. Clearly, however, you must be wide-awake, my friend, on an occasion of this kind. Beware, above all things, of putting hay together damp. If you suspect it, strew

salt upon the mow as you build it. Hard benty hay must be put together soon, in order to heat and clear again. It is fit only for horses and lean cattle : better if even they might be spared its infliction.

Very hot weather during hay harvest is deceptive ; the grass foxes to be dead sooner than it is ; it is often crisp, and rustles when handled before the sap is sufficiently dissipated. There is a tide in the affairs of hay, which taken at the turn leads on to fortune. You must carry at the fitting moment, or you will suffer. It kicks the beam but once. There is a point beyond which the game-cock cannot be trained—the point of his “athletic weight,” to which it takes usually ten days to bring him in skilful hands. From this—the height of his strength, and activity, and courage—he will fall in twenty-four hours. They cannot keep him on this pinnacle of his condition by any means. Even twelve hours will make a great difference for the worse. So, unless you carry hay the moment it is sufficiently made, you will endure a loss on a very hot drying day of not less than fifteen to twenty per cent. in weight and nutritious properties from evaporation. Of the mischief that is going on your nose will inform you. That delicious floating fragrance is a run upon the bank which you must do your best to arrest. The starch, too, the scientific say, by this roasting gets converted into woody fibre. The problem in hay-making is so to hit the mark—a kind of fire-and-water risk—as to dry it only so far that it will awake in the stack, but not exceed a fitting warmth. Hay that has not heated at all is comparatively poor,

having the wood element in excess and the saccharine defective. Hay overheated and stained dark is but second-rate for the dairy, and to the hunter ruinous.

The slightly embrowned and deliciously fragrant layer (as you cut it) of many varied herbs and stems is the stuff, we beseech you, for our Alderney and cob ; not too green, mind ye, not too stringy, not too dark of hue, nor dusty, but short, crisp, scented that a king might make his bed thereon and be contented.

The Middlesex calculation is that a good mower will lay low from one and a half to one and three-quarter acres of grass per day. To each mower there are engaged five haymakers, men and women, including loaders, stackers, pitchers, and all. The men work from six A.M. to six P.M. ; the women, from eight a.m. to six P.M. There is an extra money allowance for work done after these hours. They bring their own rakes and pikes, usually ; and there is no better hay made in the wide world, or a heavier average crop, than on the petted meadows in the neighbourhood of the metropolis.

DAIRY MANAGEMENT AND PROFITS.

Dairymaid—Farmer's Wife—Dairy Building—Churning—Recipe for Turnip Flavour of Cream—Profit of a Cow—Stubble Butter—Milking—Fattening Calves—Rearing—Age to breed—Quality of Milk—Calving in May—London Milkmen—Kicking Cows—Buy from poorer Land.

CHIEFEST of all considerations, your dairy cannot have too even a temperature. The dairy-woman cannot be too careful, or too clean ; or, if possible, too good-tempered. The legend being, that to be cleanly you must needs be cross. The best we ever had, as long as the dairy was beneath our own roof, was a bright, rosy-cheeked girl—fond as a duck of splashing in spring water—to whose cheerful summons the cows seemed glad to yield their milk ; and whose full arm amply testified to the energy with which she would dash out against the marble plate, after many a revising, those tiny, treacherous globules of water which, allowed to remain, give inevitably a rancid flavour to the tub.

The farmer's wife in Cheshire is the most important personage upon the farm. The dairy management is "one of the most ticklish parts of a farmer's business," wrote Young ; "either a very diligent and industrious wife, who sees minutely to

her dairy ; or a most honest, diligent, and careful housekeeper, or he will most assuredly lose money : trusted to common servants, it will not pay charges."

To revert, however, to the building : it should have a northern aspect, with a floor sunk a few feet below the surface of the ground, as a more even temperature is produced thereby. It should be away from the slops of the back kitchen, and the fetor of sinks. If there be a walnut or other close-spread tree to overhang it, while it adds to the picturesqueness of the spot, it will contribute to the coolness within. The temperature is a secret far too little observed in dairy management.

The cream should be as nearly 51° as possible in temperature, when put into the churn : to secure this exact temperature, recourse should be had to ice, or a deep-sunk well in summer ; in winter to hot water, or the fire. There are churns made now with hollow paddles, to be filled with iced or hot water, according to the season ; while others have a false end behind, in which water can be deposited for the same purpose ; but of the success that attends them we cannot speak from experience. However, the cream put into the churn at 51° will rise in heat through the action of the paddles to 56° , at which temperature the same amount of cream will yield a greater amount of butter than at any other, and the butter will come sooner by several hours in winter. You must expect the churning, however, to be tedious if the weather have been stormy, or cold of late ; or if many of the cows be near calving. A small thermometer, of boxwood and glass, should be

kept in the dairy, with a pencil mark across 51°. The dairy-woman will, after a trial or two, as I know from experience, be only too glad to avail herself of this scientific help. In sultry weather, skim your cream the moment it begins to crack. The dairy-maid should, in fact, be vigilant as the sentinel of a beleaguered town. The cows should, moreover, be milked as near to the dairy as possible, so that the milk can be carried in warm, and sieved straight-way; otherwise, if it be allowed to cool, there is a loss of cream, and consequently of butter. In the cream, to ensure a good churning of butter, there should be a certain sour element; to obtain which some dairy-women keep a little of the old cream; some use rennet; some, lemon-juice. Where the buttermilk is desired for combination with potatoes, in that most delicious of all slops to those who have learnt to like it early in life, the milk and cream should be churned together. The buttermilk from the cream alone is too oily to drink.

The milk required to make one pound of butter will make two of cheese. Ordinarily, from three to four gallons of milk will yield a pound of butter.

Cows after the second, third, and fourth calves, yield best in butter.

Half an ounce of saltpetre to every six gallons of cream, melted in a cupful of warm water, and mixed with the cream (also at blood-heat), will most effectually remove all taste of turnips from the butter: this in the root season is a great advantage, as the swede yields milk and butter; mangold-wurzel mainly, if not merely, milk. There will be plenty

to affirm that they have found this recipe a failure : the secret of success lies in the two being blended at the same temperature ; either one being cold, the experiment we have found to fail ; but when they are mixed, both being at blood-heat, it is an infallible specific for that offensive flavour.

I may note here, that some try to avoid the taste of turnips by giving the cattle their roots just after instead of before milking, as though the fragrance and flavour could filter off their system somehow by the next milking time. This practice looks to me like trying to "lick natur," as our Yankee cousins express it ; and is to be classed with the invention of the ingenious Paddy, who professed to grow streaked bacon by starving his pig on one day, and giving him of his choicest store the next.

The profit of a cow will depend much upon circumstances : it will ring the changes between 6*l.* in country hamlets, up to 20*l.* near towns, where butter is of higher price, and milk has a ready sale. In Cornwall, a milch cow is let for 7*l.* ; whereas a London milkman will—we have it on the authority of Mr. Milburn—occasionally make the apparently enormous sum of 80*l.* in the year from a single cow. This, of course, is an exceptional case, as is the tremendous rent of the water meadows that enjoy the flooded sewerage of Edinburgh. We have, ourselves, a profitable consumption of the milk and butter, besides much that is given to rearing calves and colts ; and our average is about 14*l.* a cow per annum. Locality is everything. In some places, butter maintains a high and steady price ; at others

—as at the sea-side—it oscillates violently with the season and the demand. Hereabouts, I think, most farmers' wives will supply thirty pounds per week for 1s. per pound, all the year round. They did five years ago, but things are dearer to-day. Near a town, the milk is obviously more valuable than in the heart of the country, where much goes to the calves and pig-trough: although, after all, we doubt whether this is not as good a mode of disposing of the milk as any other. Animals well treated in their infancy, will repay the farmer doubly. The cattle ripen a year sooner; the pigs attain a start which it requires comparatively little forcing to raise to a fair butcher's mark. The phosphate of lime in the milk deposits and consolidates the bone matter of young stock; gives that first requisite good fore-legs to a colt, and due breadth of beam to the short-horn heifer.

'Tis wonderful how chemical agency may combine materials to supply the place of mother's milk, but we doubt whether that forward science can ever so exactly imitate the quality of anything as to supersede the original. The chemist can resolve the diamond to carbon; but he cannot produce a diamond from carbon, or we are happy to be mistaken. So too, we think of milk; when it must be replaced, let the chemist do his best; when it is to be had in genuine shape, adopt it so by all means.

After all, is not milk the natural aliment? All other washes, broths, and prepared messes, multitudinous and successful as they are, are poor beside it, and this the great breeders act on.

"In milk, man's natural food, there are all the elements necessary for the formation of the body : phosphate of lime for the formation of bone ; salts of soda to aid in the formation of the gastric juice and to give fluidity to the blood ; casein to form the flesh ; and butter to produce fat."

So writes Dr. Muspratt, in the interesting work on chemistry which has been referred to elsewhere ; and what he has penned with regard to man, holds good, we may presume, in the case of other animals as well. There is a limit, however, at which the nicest possible judgment in combining other food will be required, if it be decided to continue a milk diet. Full-grown cattle, we know, have their wet-nurses with advantage ; but Buffon mentions, as a matter of conclusive certain experience, that foals which have been suckled ten or twelve months are not ultimately of equal value with those weaned sooner, though they are generally full of flesh. Simply then, in practice, it is found that milk pays to a far later period in the nurture of an animal that is destined for the butcher, than in one whose merit lies rather in a development of muscle and bone than in the meat it carries.

But to return from this digression : mind you attempt not to pot butter made during the succulent vetch months ; it will assuredly go rancid ; the stubble (as the London dairymen term it) or October butter is the only kind that will keep sweet ; and mind you have a cloth wet with brine dabbed on and left upon the surface of each stein ; as prudent housewives lay brandy-steeped note-paper on the frontispiece of their preserve-pots. The capital Irish

butter we have across from Waterford has, I believe, some sugar mixed with it in the making. Mind and keep the surface of the butter in your potting-firkins rough and scored across, so that the new churning may unite better with the last instalment to an intimate union with which it must be well kneaded.

Flat cisterns lined with lead, from which the milk was run off by a tap in the corner, used to be fashionable, and are yet to some degree in vogue; but they are dangerous unless most incessantly scoured; besides that they blister on hot water being poured into them. Zinc double pans are good. Hot water being put into the outer one makes the cream rise decidedly and firm. White china looks delicious, but is a slippery customer unless in the canniest of hands. To make fine butter, churn the collected cream within three days in hot weather. In severe frosts churn the whole milk daily, as a frozen cream gives a rank flavour to the butter. Butter ought to come within the hour. If it be backward, "at the time it ought to come, not before," put in half a gill of good vinegar mixed in a small quantity of warm milk.

A cow in good milk cannot be milked in less time than about twelve minutes by the best hand. In some dairies the herd is milked three times a day, the yield they calculate being improved to the extent of at least a third thereby. It is a good plan to have a change of pasture—one for day, one for night—the novelty stimulates the secretion of the system. The last wringing of the teats, remember, is the

most valuable, as containing the richest element of cream.

Hence some farmers allow a calf to suck half way through ; so reckoning on the double profit of fatted calf and butter as well. When a cow calves, let the calf suck for three days—drain the “beastings,” it is technically said. This has a medicinal effect upon him, while it prevents inflammation in the cow ; nor under any circumstances remove him until all appearance of a core has disappeared from the milk.

It seldom pays to fatten a calf over ten to twelve weeks. In Essex one calf replaces another—being bought for the purpose—until sometimes five or seven are fattened by the same cow in succession for the London markets, occasionally two, or even three, being fed at once. A large number of calves for this purpose is supplied to Buckingham and the neighbouring markets from the south-western district of Northamptonshire, being the offspring mainly of the shorthorn Yorkshire cow, which the dairyman of that district prefers. If your herd be a valuable one, you cannot do better than let the calf run with her mother in good grass. It is the cheapest way of bringing up a likely youngster. “The more calves are allowed to suck, the stronger and larger cattle they become.” (*Buffon*.) As cows are, however, apt not to come in season whilst nursing, you should take it away for a while, or what is better, have an Alderney wet-nurse for her, whose superior flow of milk will give extra size.

In this transfer of affection, if the foster-mother does not take kindly to her intended nursling, rub

the noses of both cow and calf with just a taste of brandy ; deceived by the savour she will then take to it at once.

This practice of allowing the calf to run with the mother is objected to by some as slovenly and not economical ; but the rearing of a calf well is surely of more importance than the few shillings you could so screw out in the shape of butter and cheese, at the expense, be it remembered, of considerable labour.

Equal wisdom, to my mind, do the small Welsh farmers exhibit, who throttle off the lambs in early infancy for the sake of a few extra pounds of sheep's milk cheese—an article of the merits of which some rave, while others deem it simply detestable. *Medio tutissimus ibis*. The pity is, the poor bleatlings are apt to run to a pumpkin-shape, unless nursed after a fashion, and on artificial food at least equivalent to the profit attempted at their expense. Perhaps 'tis fairest after all to grant a rule *nisi*. There may be something to be said upon the other, as upon this side. To the simple it appears, notwithstanding, very like grasping at a bank-note and the change as well.

To try back, however. Most are of opinion that “the act of sucking produces a plentiful supply of saliva, which materially contributes to the digestion of the milk and the health of the calf ; an evident difference may be perceived between the calf that sucks its dam, and another that is fed from the pail : the coat of the former is sleek and glossy, indicating health ; while the hide of the other is dry and hard ; nor is this unthrifty appearance removed until some

time after the animal has been weaned and fed wholly on grass. It is also said, that a greater proportion of calves fed from the pail die of stomach complaints than of those that suck the cow." Mr. Bakewell adopted the oatmeal porridge and oilcake treatment for his ordinary calves; "the bull calves, however, and high-bred heifers were suffered to remain at the teat until they were six, nine, or perhaps twelve months old, letting them run with their dams, more frequently less valuable cows or heifers." So do great breeders, now-a-days, as a rule. In Ross-shire the peculiar custom prevails of allowing the calf two teats to himself, the dairy-woman engaging the others; under this treatment the calves are of course kept apart from their mothers, being weaned in October altogether; from which period they are fed on the finest of meadow hay that can be procured, turnips not being grown to any extent on the large pastoral highland farms.

The plan they have in Selkirkshire of rearing calves is stated by Youatt to be as follows: "The calves are fed three times in the day, and get two quarts at each meal for three months; after that the farmers' wives begin to take 'a stoup out of their bicker,' as they term it; giving them less and less, with a little skimmed milk, until they are weaned. After this the calves are generally turned out into coarse pasture."

This reminds one of the way in which a strong-minded drunkard (would that they could be often so) is said to have cured himself of drinking; viz., by putting an extra half wine-glass of water daily

into his grog, until he had eventually so let himself down that he was insensibly enjoying pure water : until his gratification was nothing " but for the name of it," as the Irishman remarked on being conveyed in a bottomless sedan-chair, an undertaking which necessitated his feet keeping pace with the bearers.

" There is no good of late calves." Quite right, my man ; and that the shrewd Galloway farmer knows too. Calves to do well, that is reared, should be dropped in the latter part of the winter, or the beginning of spring. " Nearly a year's growth and profit is lost if the calf is born in the middle of summer." In Galloway, the calf's pull on her mother is abridged much as in Selkirkshire. She is fed well in winter with hay and turnips and potatoes, " for the breeder well knows that if she is neglected or stinted in her food during the first fifteen months, she does not attain her natural size, nor does she feed so well afterwards."

Buffon's rule is that the calf should be left with its mother for five or six days, that it may be kept warm, and suck as often as it has occasion ; it may then be removed, or it will weaken the mother too much : being brought to suckle two or three times a day. To fatten quickly, they should every day have raw eggs, and boiled white bread (to the pointer certain death) and milk. In four or five weeks they will be excellent eating. As soon as the calf begins to notice, as the nurses say, he should have beside him a lump of chalk to lick, to correct any acidity that the milk might give. For much the same purpose, I expect, the celebrated Kintore ox had a

basket full of earth beside him while feeding in his stall. A calf is bled once or twice before he is killed, to make his flesh fair for the table. In Lanarkshire he is fed for the last three days on water-gruel, with the same intention. Butchers prize less the calves that run by their mothers ("runners" they term them) than those which are pampered within. In Buenos Ayres, the main export trade of which consists of hides, horns, tallow, and the like, curious is it that while a full-grown beast will be slain without compunction, for the mere sake of its tongue, there is a law prohibiting the slaughter of calves. Calves that you rear should be habituated early to be tied up and handled. To this was attributed the extraordinary gentleness of Bakewell's bulls; which a boy could drive anywhere with the merest switch.

Of course, you must avoid petting or playing with them. They are just boys over again: be firm, but kind, and you may do anything you please with them. Be injudicious, harsh, unfair, and you ruin their dispositions for ever.

The cow breeds at a year old, and continues to breed sometimes for sixteen or seventeen years. She goes with calf nine months. The bull is used as a yearling. Greedy people draw upon them even earlier, but it is ruinous in the end. If he could be left to three or four years of age, it would pay in the offspring. Arrange that your heifers calve for the first time in May, when there is an abundance of green food for them. Some let the first calf suck the mother throughout, with the view of making a

bag ; that is, enlarging the udder : they should be accustomed, notwithstanding, to be milked, or they may be troublesome next time they calve. Undoubtedly, as a rule, calves reared upon a farm do better than young cattle bought in, not to mention that the hoof and horn disease, or worse, the dreaded pleuromonia (that damps so irreparably the gilding of the year's profits), is usually imported in a purchase.

It has been said that "good milk is neither too thick nor too thin ; its consistency should be such, that a drop should preserve its roundness without running. In colour, it should be of a beautiful white ; that which is inclinable to blue or yellow, is worth nothing." [This must have been said presciently of the milk sold now-a-days in mews, that is tinted with stable water (see *Mark Lane Express*), and not of the Alderney, upon whose golden-tinged yield Mr. Fowler lays such plausible stress.] "Its taste should be sweet, without any bitterness or sourness. It is better in the month of May and in summer, than in winter ; and it is never perfectly good but when the cow is of a proper age (about five years), and in good health : the milk of the cow is not good when she is in season, near her time, or has lately calved."

Alas ! that in our great towns (as regards the metropolis and Oxford we speak feelingly) your cream should be a compound of calves' brains, or white slugs, and chalk and water ; but they are innocent ingredients every one ; and does not the combination show intelligence, industry, and inge-

nuity? Some like their cows to calve about Christmas-time, so as to secure the run of the spring prices for butter and milk. A heifer (as I stated above) should calve her first calf down to a full flush of grass. Some dairymen prefer their cows calving not too early, because they go dry sooner, but that should not be the case with plenty of roots, and green crops to follow. The farmer's wife records that the autumn grass yields more curd for cheese. Regard being had to the pail and the butcher, your cows should not be kept too old: the heifer calves of the best milkers being reared, there will be a regular succession for the dairy. Put them up to fatten at once when their yield begins decidedly to diminish: but mind, this may depend upon the food you supply them. The London milkmen, of course, sell off each one as she gets dry, with the rarest exception. Once in a generation they will breed from a prime milker.

If you buy in the market a good cow, you run considerable risk of her being a kicker, or she would not otherwise have been parted with. Mind and have her drained off at once, as soon as she is yours, as sellers too often adopt the cruel plan of leaving the poor brute un milked for a day or more previous to her being exhibited for sale, with the view to her having a great "show;" in other words, a distended udder. It is termed "stocking for sale."

If you *must* purchase, try to import from worse land than your own, or you are sure to lose. Do all you can to prevent your cows from sinking too low in flesh during the winter. They should meet the grass season in good trim, or you will not be more

than half paid. The age of a cow is known from the horn. After their third year, a rim grows annually about the horn, as circles do around the bole of an elm. But the file and a piece of glass can do much to baffle the learned herein.

There is not much good to be done with a kicking cow. They may certainly be strapped up, but that involves a great waste of time and trouble: some persons they will more kindly allow to approach them than others: a sour visage certainly affects a cow's temper; but you had better feed at once, or sell a milker of this stamp, for it certainly is not profitable to have your unfortunate attendant often come marching "into the house with a grave step, a long face, an apology, and an empty pail." And so to dairying adieu! for the various local modes of compounding cream and cheese I cannot here undertake.

JUDGING.

Common Principles—Study in the Show-yard—Angle of Shoulder—Flat Foot of the Horse—Action—Cylindrical Shape of Feeding Animal—Signs of Quality—Culley's Points of a Ram, Bull, Pig—Flat Rib—Springing Rib—George Stevenson—A practised Eye requisite for Judging—Scrap-book—Lines of Beauty—Age of Horse—External Characteristics of the Milch Cow—Youatt—Mr. Stephens—Isle of Wight Farmer.

THE principles of judging an animal are few and simple; in the main, much the same for the cow, sheep, and pig; in fact, the meat-producing kinds. The horse has a few in common with them, but so many different, as to require his being treated of separately. Common to all are the excellences of the sloping shoulder, the angular quarter, the tail well set on, the springing rib, the full eye, the small fine nose, the strong loin, the mellow skin, the airy bearing of the head and neck, the easy gait, the general mien of dignity and grace. These are all indicative of the first-class animal of either breed. To be low, lengthy, short-jointed, broad of beam, are attributes of value in each breed. Yet have they all their distinctive characteristics besides, which may be soon learnt in practice when once the eye has got

used to the grand features of the frame ; but which, in their minute fullness of detail, without a model at hand, could scarcely be comprehended from paper. This esoteric knowledge an intelligent, patient teacher could show his pupil in a few half-hours, with just an interval between each breed to allow the knowledge to dry in its setting before they proceed further, or the result may be confused.

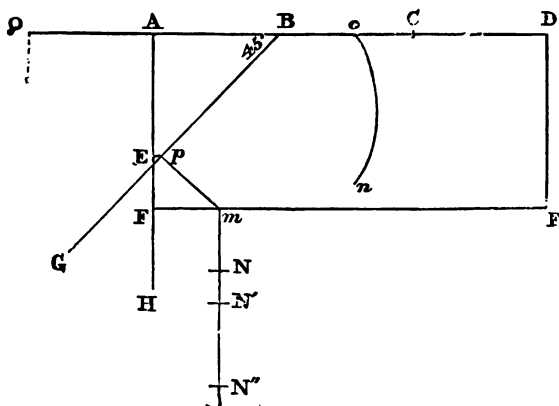
The leading principles only I can hope to teach on paper : these the most ignorant person, possessed only of ordinary intelligence, and having such an eye for configuration as a few lessons in drawing ought to give, may acquaint himself with readily by a few evenings' study. He will require practice to impress them on his memory. All that I hope is to give the tyro an idea of what should be noticed. I just run him up handy a few plain deal shelves, in a ready position for him to fill by his further acquisitions of knowledge, and ticketed, as I have found them in my own experience most convenient ; such as I consider if I had found them placed, would have saved me much time and trouble. There is much, of course, that is ineffable ; those nameless graces which "seen, become a part of sight ;" which, once appreciated, can never be forgotten, and, unhappily, spoil the eye for anything that does not come up to their height of beauty. The chief points, however, one may indicate with the pen. Having earnestly studied them thus represented, take the first opportunity you have of going round the stalls of the Royal Agricultural Society's Show with an accomplished friend, and have yourself taught the inner

mysteries of "handling:" that is, to judge by the touch an aptitude to fatten, or otherwise. Get aware of the changes which skilful trimming can ring in the appearance of a sheep. It will amuse you to watch the matutinal scientific oiling of the negro pig, and the grateful shower-bath they give his smoking skin through the common-place medium of a garden watering-can. It is requisite you should learn what value attaches even to a crease in the hide, when competition runs high between a porcine pair; and to the solitary extra inch of girth that decides between the claims of the rival Devon heifers.

Be stirring early; you will have the show-yard pretty much to yourself then. The active exhibitors you may probably find there. Many a hint you may get on feeding, by watching the servants in attendance on the stock. It is a grand sight, moreover, to see the procession of horses enter—of every shape and size and colour—from the magnificent, immense, dray Champion to the clever Welsh pony, with its hunter points, its square action, and its indomitable spirit. It will be worth your while, further, to take home the slightest lock from the coat of the different prize sheep in the various classes, to be examined at leisure with a microscope, and preserved, as they will occupy no room, and may serve to keep up the measure of your acquirements on the important subject of wool.

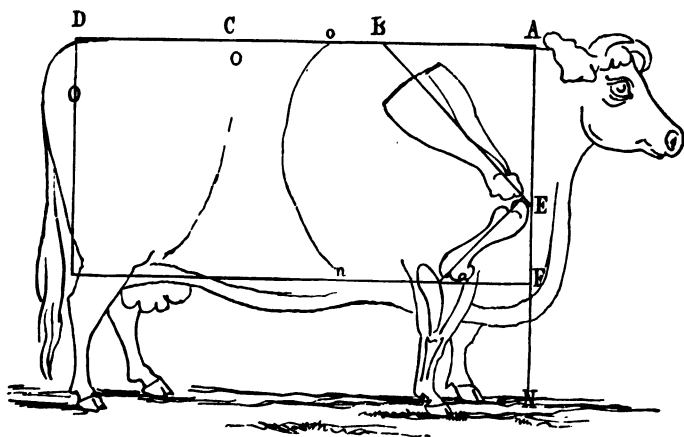
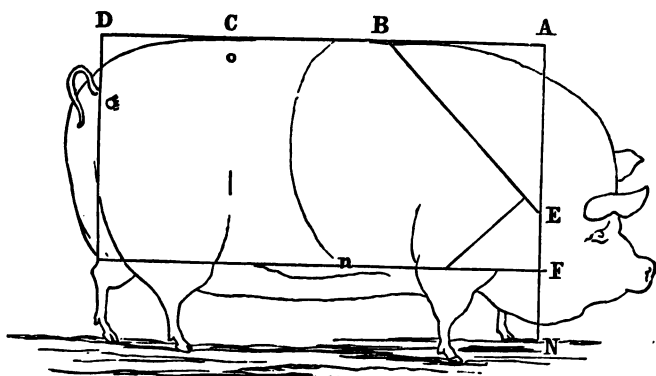
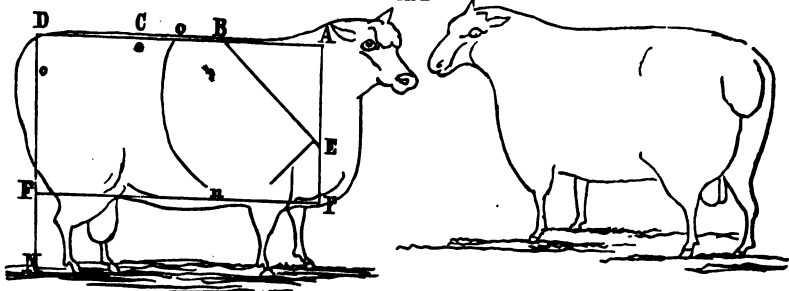
At this early hour of the day you will see the animals themselves in their freshness, while you are spared during the cool morning the unpleasant odours that repel at the crowded noon, more espe-

cially in the region of the pigs and sheep. You may then sit by on a truss of sweet hay in some empty stall, and chat with a friend, or take stock of the human creature in turn, as it drifts by in varied shades of character and colour. To enable you, however, to gain the primary idea of a good animal, that is to underlie the superstructure of your future more intimate acquisitions, draw a straight line, AD , of any length you please. Divide it into *thirds* at B and C . Let drop at right angles to AD , AH , of any length. Through B draw BG , at an angle of 45° to AD . This indicates the central line of a perfect shoulder. Just before your pen reaches the line AH , arrest it and mark off E by a line Ep parallel to AD , and vertical to the junction of shoulder-blade and humerus. Draw pm central line of humerus at right angles to BG . Cut off $AF = \frac{2}{3} AE$ and complete the parallelogram $AEFD$. Drop down for length of leg of pig $mN = \frac{A F}{3}$: for sheep and cow $mN' = \frac{A F}{2}$: for horse $mN'' = AF$ up to $(AF + \frac{A F}{9})$.

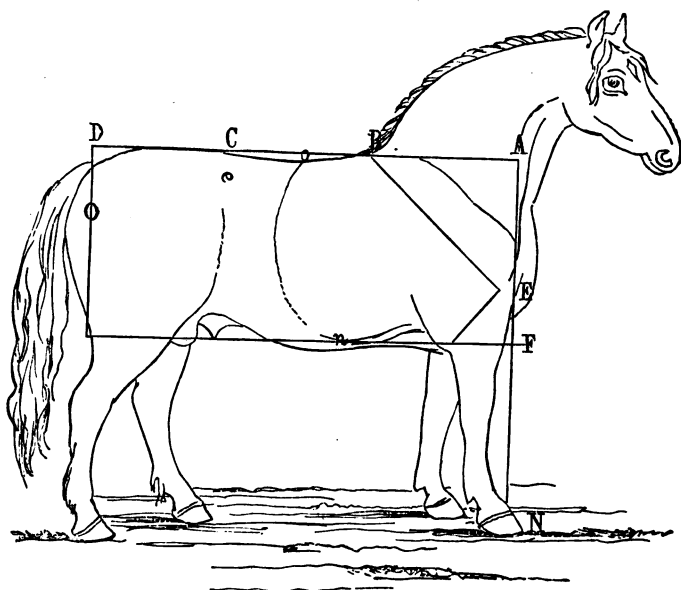
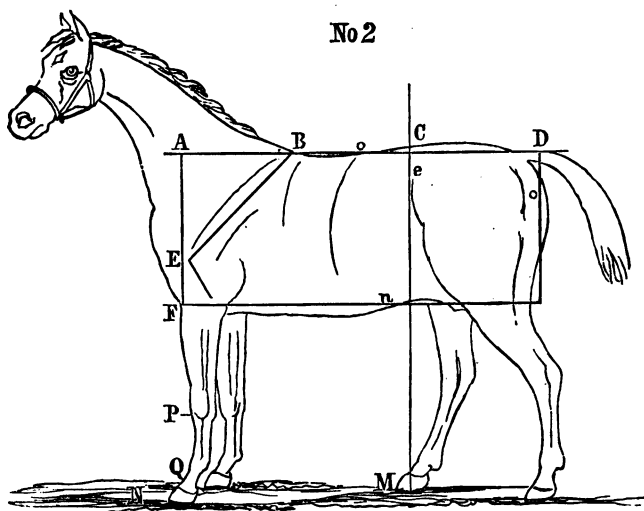


From centre point (o) of A D throw out the rounded girder (o n) for first rib. Continue A D one-third further to Q, and you have the length the nose should extend out when the animal stands at ease. In the case of the sheep and cow, much style is gained by the crest rising above the line Q D. In a horse it does so of necessity. In a pig it does not. Now dot about these square lines the specific contour of the animal you want to represent: put on head and tail, and you have a rough likeness at once of a cow, or pig, or sheep, or horse. In the case of a "low and lengthy" animal, B C will be about $\frac{2}{3}$ longer than A B or C D. Go through all this patiently upon paper yourself. Experiment upon the proportions, now lengthening, now shortening, a few times, and you will be surprised at the amount of familiarity you will obtain with the animal's frame. You must trace with ruler and pencil for yourself. It is no more use just reading it with your eyes only than it is to work out the Binomial theorem only so: a plan of operation with which too many, at least in *statu pupillari*, are inclined to content themselves. Having made yourself well acquainted with these characteristics—having stored them in your memory—and having come further (which is not quite so easy at first) to recognise them on the live animal, take every possible opportunity of comparing points; never pass by an animal without notice—lean, fat, plain, picturesque, in health, or ailing, and some morning the knowledge you aim at will burst upon you in a degree of fullness which you can never again lose. The sketches of animals used in illustration I have borrowed from Youatt, and that excellent publication the *Farmer's Magazine*.

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The line of a perfect shoulder is at an angle of 45° to the line of the belly; the steeper it grows from 45° the less freedom has the animal in its movements. His action gets cramped or "round." He is more liable to trip, for he cannot lift his foot as well over stones and other impediments. There are those who argue that the shoulder of the cart-horse should be steep to allow of a more equable strain upon the collar. Surely this end might be secured by the packing of that portion of the harness. Any additional amount of strength that some may fancy is to be obtained by a steep, elephant-like shoulder, is surely more than counterbalanced by the contraction of the stride and the propensity to stumble. This angle of the shoulder in cattle Mr. Bates was disinclined to, or rather preferred a steep one, as allowing a longer back—hence the defect so common in the Bates cows, of a hollow behind the shoulders. His opinion, however, in that respect, has no favour with the breeder now-a-days, every likely pig, sheep, and cow being turned out at the Royal Show to see whether they can walk well and freely.

The pastern should slope at this same angle of 45° , thereby combining in the highest degree strength and elasticity. The Arab, whose foreleg is set much farther under him than the English rider likes (Shakspear), has a much acuter angle. This gives that easiness of pace which, with his peculiar stilty action, could not otherwise be looked for. In walking, the heel should come down first, the toe subsiding after. If the toe hit the ground first, the horse is sure to be a stumbler. A thin flat sole, as a

small contracted foot, is to be avoided. In the former respect the Flanders horse is notorious, and it was probably owing to some such defect that William lost his life at Mantes. I have seen a flat-soled horse come down upon his knees as if shot, upon ground where a good-hoofed one might have galloped. There are a number of minor points which you can learn only by practice. As, for instance, in the horse the foreleg should have the arm from elbow-point to just below the knee, P, about double the length of the cannon-bone, P Q—bone from knee to fetlock. This enables him to take a longer stride, to cover more ground in his gallop than he could with arm and cannon-bone more nearly equal. A line drawn through his hip-bone perpendicular to the ground, should pass through the toe of the hind foot as he stands at ease with it forward naturally under him. He will then have sufficient power and reach in his stride, provided the thigh, &c., be fairly developed. His head should be put on the neck just beginning to droop, as the stem of ripe corn. This is essential to a good mouth. The more true the plane-triangular formation of his front is, the safer will he be on his feet. When a spherical triangle might better represent his front view, thus,  he is said to be loaded at the shoulder-point, and is usually unsafe on his feet.

Most horses fail, as regards appearance, in having their quarters too short, their tail too low, or their necks set on badly. To ensure a lovely head, in addition to a small muzzle, small pricked lively ears, broad forehead, and full eye, the frontal bone from

forehead to nostril should be slightly concave (the opposite of a Roman nose), and the jowl should be clean cut out underneath. A thick jowl and a Roman nose spoil a horse's head at once. The tail should be well set on; in this regard no breed can approach the Arabian. When the tail is low, the horse is goose-rumped, as Fisherman, and a large proportion of Irish horses, who are supposed to jump better in consequence. But, as I have said before, I can only attempt to fix a few stepping-stones—a few pin-heads—to guide the eye. You must go to the illustrated pages of Youatt, Laurence, Stonehenge, &c., to fill up the measure of your knowledge, having as a commentary in your hand that most interesting and sportsman-like description of the horses of India, recently published by Captain Shakspear in his volume on the *Wild Sports of India*; wherein he enlarges fully upon all fitting equine points and properties. A good rule for judging what a young or lean animal will be in good full-grown condition, is to stand behind him, a yard or so to one side. The three-parts view you so obtain will give you an excellent idea of what the made-up animal will look like. Seeing him thus foreshortened, you can form a fair notion of what he will be when he has thickened.

But there is, beyond and above this, what you must see in life to comprehend—fine action; that elastic and yet firm tread, that supple cleverness of movement, which, depending upon the play of a properly sloped shoulder, the forward flinging out of

arm from elbow with perfect freedom of the knee and fetlock joints, and an apt replacement of the forefoot by the hindmost quickly plied, is the most costly essential about a hack.

Once behold, and you can never forget it. There is a power of might and lightness blended in the stride of a free gallop, as in the movement of a clever trot : a style of going opposed altogether, and equally, on the one side to the stilty, stiff, unsightly bounding of the Barb, as on the other hand to that supernal ambitious cabriolet step, which is said—I hope falsely—to be taught literally by training the poor brute on a hot floor, from which he vainly essays to lift his aching feet ; or, again, by attaching sand-bags to his legs, from which he is continually trying to get his feet clear, until finally the action becomes habitual. Action must be natural in a great measure ; it cannot be taught, though it may undoubtedly be improved. With that object the London dealers trot their young horses in yards deep strewn with haulm or straw ; and the Americans are said to train them across balks of wood laid parallel, the distance between them being increased as the pupil gains in skill and speed.

In a first-class cow, pig, sheep, the broad back should be so straight and level, that if a plank were laid along it from the top of the shoulder, upon the hip or pin-bones, to the “fool’s point”—that is, the bones on either side the tail, so called from every one’s feeling it as he first approaches an animal, without reason that he can allege—rain water would

not run off, while on your looking underneath no light could be seen between the attaching surfaces of board and beef. Above all things, there should be no elevated ridge along the back, with flat down-sloping ribs on either side. Of a fatted symmetrical heifer, the head and legs being cut cleanly off, the carcass should be so cylindrically true all over—no hollow behind the shoulder or by the flank—that it would roll a gravel walk and not miss a pebble. Having come to recognise these leading points that meet the eye, you must learn the mysteries of touch—to “handle a beast”—a secret the acquisition of which will give you no slight trouble, no less than the knowing how to sharpen a razor, for which trust a doctor! If your razor become unreasonably cruel, then I advise you to curry favour with the nearest .. surgeon. But to return : a beast should have a skin mellow as a French glove—not too thick, not too thin—filling your hand with an ample pliant fold as you grasp it, and clothed with a wealth of rich soft hair. In Africa, I may observe in passing, just to show how impossible it is to please all folk, this quality is at a discount, inasmuch as it makes the seat of the rider on the saddle-ox uneasy.

The hide of an inferior animal is thick, harsh, coarse, tight-sticking to the rib as an asphalt roof. A pendent pouch of skin under the chin indicates an aptitude to feed, as also does a cushion of meat upon the pin-bone. And this applies, too, in a great measure, to the improved pig, as distinguished from the gaunt natives, which, thirty years ago, used, on their

journey from Ireland, to take the gardeners' gates about Birmingham at a fly, reminding one rather of that boar of the woods which the chief of his huntsmen were wont to course under the laws of Hoel Dda, from November 9th until the Calends of December (1st). I have at this moment a low and lengthy sow of Mr. Crisp's celebrated Diamond sort—so well known in the various show-yards—whose skin forms in folds upon her side and hams, even down to the delicate small bone, as she walks across the fields. She is, however, altogether a fine sample of what intelligence and careful breeding may bring a brute to. Of a sheep, too, the pelt should move glibly on pressure; while the test of a racer's condition is that his skin shift supple under your hand across the fine-drawn rib.

In further elucidation of these sketches compare the following points, enumerated by Culley as requisite in the meat-producing animal :

Points of a Ram.—Head small and fine, nostrils wide and expanded, eyes prominent, and rather bold and daring; ears thin, collar full at breast, tapering to where head and neck joins, which should be fine and graceful, being perfectly free from any coarse leather hanging down. Shoulder broad and full, but joining to the collar forward and chine backward, so as not to trace the least hollow in either place; mutton to the knee and hock, legs upright and wide owing to broad chest, clean fine bone, clear from superfluous skin and coarse hairy wool from knee and hock downwards; fore-flank behind the shoulders full; back and

loins broad, flat, straight, with ribs rising therefrom in an arch ; belly straight, quarters long and full, with the mutton quite down to the hock, which should neither stand in nor out ; his twist (*i. e.* the junction of the inside of the thighs) deep, wide, and full, which with the broad breast will keep his four legs open and upright, the whole covered with a thin pelt, and that with fine bright soft wool.

Points of a Bull.—Head rather long, horns clean and bright, large eyes, lively and protuberant ; masculine looking ; forehead broad and close set with thick curly hair ; ears long and thin, hairy within and without ; muzzle fine, nostrils wide and open ; neck strong and muscular, not encumbered with a coarse wreathy skin, but firm, rising from the shoulders with a gentle curve, tapering to the part where it is connected with the head ; dewlap large, thin, and hairy ; shoulders deep, high, and moderately broad at the top ; bosom open ; breast large, and projecting well before his legs ; back straight and broad ; tail well set on, with plenty of lank hair on the under part of it ; ribs broad and circular, rising one above another, so that the last rib shall be rather the highest ; fore thighs strong and muscular, tapering gradually to the knees ; belly deep, straight ; hind thighs large and square ; roof wide, especially over chine or hips ; legs straight, short-jointed, sinewy, clean, fine boned ; knees round, big, and straight ; feet distant one from another, not broad nor turning in, but easily spreading ; hoofs long and broad ; hide not hard nor stubborn to the touch ; hair uniformly thick, short, and of a soft texture ;

body long, deep, round, filling well up to the shoulder and into the groin, so as to form a round or barrel-shaped carcass.

Points of a Pig.—Head and cheek plump and full; neck thick and short; bone fine; quarters full; carcass thick and full; hide fine and thin, with a kindly disposition to fatten.

When a man like Mr. Mechi describes the sort of animal that farmers need, in terms concise as clever, and then declares himself “no judge,” it makes one feel audacious rather that I have attempted so much. If I had seen his book sooner, this had probably never been written. However, “in for a penny, in for a pound.” With this reckless motto, charge!

A beast, whose ribs are flat, sloping down as a roof on both sides from his backbone, whose carcass, viewed from before or behind, is rather triangular than cubic, thus—

No I



whereas it should be thus—

No 2



possesses further, usually, the (to the farmer) profitless adjunct of a large belly, and is an animal not to be affected. Technically it is called a "butcher's beast," inasmuch as the offal is in excess of the prime meat.

When old George Stephenson took to agriculture (having been the first in gardening to teach the cucumber the science of the right line, by restricting its growth within the precincts of a straight glass-tube—a plan never thought of before), he soon saw the reason, as the advantage, of a broad back to a feeding animal. It was clear at once to his observant eye, that an animal could carry, without discomfort and consequent waste, upon its back, a weight, a fraction of which would kill it hung beneath its belly. You try, my enthusiastic friend, upon all fours, and see whether you can carry a loaded saddle best, turned round underneath, or upon your back as

it should be : just for your satisfaction try which will bring the perspiration out best ; and perspiration, remember, is the dissolution of fat.

In the course of his interesting letters upon the natural curiosities of Selbourne, White complains to Mr. Pennant that "the bane of our (the naturalist's) science is the comparing one animal to another by memory." The great African traveller, Livingstone, I notice, does this in regard to the aspect of various tracts of country and soils.

That the breeder, however, should carry about in his eye different types, is essential to his success. The eye gets soon used to it. He should be able instantaneously to detect any element he requires to combine in his stock. The horse-dealer will match a horse at a glance with another he saw six months since in a different county, and as quickly suit them with an owner. So rapid ultimately does this become, that I would venture to say that an accomplished judge will determine, with his pony at a canter, the best animal in a herd or country market. As the flashing fingers of the practised musician drop instinctively upon the right note, so can the educated eye of the farmer read at first look the merits of a show-yard ; pick out a stepping pony from the throng of market carts, a pigling in his nest, and a game fowl by his stride. Yet arrived at a certain height he must take care not to overlook his practice. Disuse soon brings its mouldy clothing.

Having written thus much, I do not think that I can instruct you further upon paper. A plan I have found most useful, both to myself and others, is the

formation of a scrap-book, in which I have accumulated prints of all the celebrated animals I can obtain: by the comparative study of which the merest tyro, with a tolerable eye for drawing, may be taught in a day or two to distinguish the peculiar type of each breeder's stock—Messrs. Douglas, Booth, Towneley, &c.: one glance will enable you after a few days' use, to point out the specimens of each.

It is a famous amusement for a wet day. And if, occasionally, you amuse yourself by sketching one, until you can hit off its likeness in a few strokes of the pencil, this attainment will be of infinite service to you some day. To be a judge of stock, is the first essential in the education of the farmer.

With chemical information respecting soils and manures, the outlay of a few guineas will supply you. Artificial dressings, far better compounded than you could hope to mix, you may obtain in every town from the manufacturer himself, or his agent; you have only to name your want to be exactly and promptly supplied; but that acquaintance with your subject, which is to save you from loss, or rather to secure profit in purchasing, whether in the market or at sales, you must personally fag for; and, even when this skill be attained, you must mind and not neglect your play. You must "keep your eye in," the expression is. As one tasting cheese has to secure the fairness of his decision by an occasional bite of the neutral medium, bread; and as port wine suffers in flavour, sipped in immediate juxta-position to preserved ginger; and as, in

examining red cloth, the artist has ever and anon to right his power of discrimination by the momentary contemplation of its accidental colour, green; so must the farmer take care to set his vision occasionally. A cow bought in the market, the cynosure of many eyes, may look very shady in the shippon alongside a "Duchess!" You must keep your hand in practice, or you may some day to your sorrow have ingloriously to surrender the belt.

The exact cross, even in a variegated nondescript, such as the amateur delights in during the days of his early experience—the several elements of heedless admixture in a mongrel—the eye comes eventually to discern as certainly as the practised artist detects the component colours of a tint upon the landscape. Yet, after all, when you have learnt to distinguish the lines at a glance, above and beyond all this there is requisite that ineffable element—taste. You may teach a lady the theory of colours—she may be shown the last Parisian fashions—she may have the most *recherché* patterns presented to her—and, after all, not advising with a milliner, she may appear in the Row, what ladies term technically, "a fright." Do what you will, you cannot endow her with the power of selecting what will become her; or even of putting her things on well when she has them. So is it, too, in the selection of "those horrid shorthorns."

After all, there is even in this line an ultimate scope, which only genius can attain to. It is but rarely, among even experienced and acknowledged

judges, that one shall be found, who, with the intuition of the youthful Cid, shall select upon the mountain-side a scabby colt for a few shillings, to be subsequently, under Napoleon, the pride of the Tuileries, and the admiration of the Bois de Boulogne. Nor is it for *every* professing herdsman to calculate the exact combination of Dutch and Galloway blood, which is to result (as the famous "alloy") in a breed that absolutely coins gold for its fortunate inheritor. There are but a very, very few, and they long miles apart, who can safely reckon on the repeated red hazard game.

Regard that grey hunter, fresh from Leech's pencil! What a few strokes he has made to tell, with just the semblance of a scarlet tint to please the eye, exactly the effect one appreciates in Rowbotham's snow-scenes. How cleverly the old horse picks his way down the cover-side, a few hounds feathering in advance, not a bone wrong, not a muscle but tense and effective; and yet, the lines altogether used to depict him are not nearly so many as the sweeps the razor of each one of us takes in its morning toilet duties upon the chin. Every one who has entered a studio knows that there are certain lines of feature, distinguishing one face or form from another, which the artist marks on his plaster models with a series of black-headed pins. It is the getting acquainted with these lines, the reading off at sight the characteristic configuration of face or limb, that is the first requisite for success in thus forming a judgment. Where the uneducated eye sees nothing but the plumpness and

the bloom, the artist's pencil has sketched the encircling boundary of each nameless grace; which, too, the uncompromising apparatus of the photographer prints off all too sternly to please, until tinted down to softness by the hand again. These landmarks of the studio Byron probably referred to, when he wrote in that exquisite passage on Greece :

" Ere Decay's effacing fingers
Have swept the lines where Beauty lingers."

It is well known that, after death, when the first swollen effect has passed, the features recover their repose, and the shell of the departed looks life-like again. He is just as though he slept! they say. But the painter will inform you that it is but an illusion. The lines—the type of feature—have fallen. There are few, even accomplished portrait painters, who can take a satisfactory likeness after death, even from the most life-like remains.

So will Landseer, Herring, Cooper, Rosa Bonheur unerringly hit off the lines of beauty—characteristic features—in an Alderney or Arab. They have learnt it by long practice; and most minute, nay almost incredible, anatomical study of each point, feature, muscle, bone.

See then, again, in the partner picture, the grand repose of that massive, elephantine animal in the blocked-up dray—so intelligent, so docile, so patient, so all but human, as the aproned lusty carter in attendance. The type there again but the fewest touches have brought out. Rapid as lightning the

pencil has been, with the certainty of unerring instinct, across the board. Practised art hand-in-hand with genius, and behold—heigh presto! the result. Outlines of prize stock the young agriculturist should practise his pen in depicting, until he, too, detects by the shade the line of shoulder at a glance—a feat that puzzles the inexperienced so much.

There is this further advantage to be derived from the study of illustrated works, that a man who has once bent himself in earnest to the pictured page of Laurence, Mayhew, Youatt, Stonehenge, will be fore-armed for the approach of any epidemic or accident. The characteristic symptoms his eye will come quickly to detect.

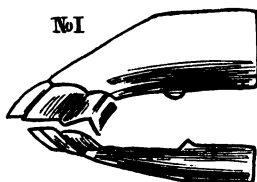
Any one of those volumes will instruct him far better than words can, in the essential point of knowing how to determine a horse's age by his teeth. It is simply this: When about two and a half years of age, he casts the two central teeth in upper and lower jaw (nippers they are called). They are soon replaced, but he should at this period have plenty of soft food, or he is apt to run back in condition. The next year one on each side of the central pair are cast above and below. He is then four years old. The next year one on each side of those last replaced is cast, and when the new ones are come the horse's mouth is full. He is approaching to the pride of his might, five years old. These two outside teeth are more slow to grow than the other four intermediate ones. At five years old they scarcely rise above the gums: at six the hollow begins to fill. The Arab

colt is not considered in his prime until he has completed his sixth year. Writing for the tyro and the amateur, I may remark here that there is a wavy cavity on the top of the teeth, coloured dark. Every year after six, with the rarest exception (Buffon), this hue grows more faint and dim. Cheating dealers take an old horse and file his teeth down; then skilfully, with a degree of high art that is worthy of a better cause, carve out the tooth with an engraver's tool, then burn the hollow, finally filling it with a kind of black composition. This is called Bishoping, from the name of the knave who invented the mode. There is a theory that after six years of age, when the lower range obtain their discharge, the upper teeth indicate the accession of years by a like wearing of the marks, but this is not to be relied on.

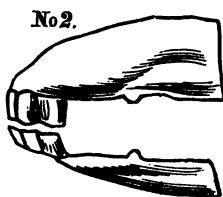
A frequent but disgraceful practice is it in the London market to make up a horse's mouth a year before its time by drawing the outside teeth, so that at four the mouth presents the appearance of being "full," as it would be fairly at five. So the breeder or dealer gains a year's profit.

Some lay stress upon the growth of the tusks, asserting that those in the lower jaw shoot at three years and a half; the two in the upper jaw at four; till six they continue sharp at the point; at ten they are long and blunt. All this is attended by much uncertainty.

After fourteen, grey hairs appear on the eyebrow. Every year now the teeth grow longer and more forward, being less pincer-like; thus—(Laurence)—



instead of being thus—



From ten to fourteen there is no indication of the passage of years: though Buffon speaks of telling a horse's age by the gradual effacement of the ridges of the palate. He has again a theory, that the duration of an animal's life is proportioned to its growth; that it lives about six or seven times the period it takes to grow. For instance, a colt may consider himself a horse at five years of age: with good keep and care he will last till from thirty to thirty-five years of age. This calculation, however, seems a hasty one when applied generally to all classes of animals.

The eyepits of old horses are commonly hollow, but this is an equivocal sign, inasmuch as the stock of an aged sire are apt to exhibit the same defect. The same vagabonds who Bishop, will inflate with air the sunken eyepit of an old horse to the original plumpness of youth, as the prize Ayrshire bull at a Scotch show some short time ago had his bad points

"The points considered good in an Ayrshire bull by the breeders of that species of stock, are a broad short head, the horns spreading from the side a little in front, and turning upwards. The top of the shoulder sharp, back rather narrow, and rounded over the ribs, ribs rather flat, hooks confined, hams thin, tail-head somewhat drooping, belly enlarged, and legs very short. These are all points opposed to those of a good shorthorn: and the points in which they agree are a straight back, loose mellow skin, large eye, sharp muzzle, and small horn."

"The cows are best liked for a very sharp shoulder, and wide hooks and pelvis, in which conformation the ribs are always flat and the belly large. The udder is desired to be hemispherical, situate forward, and provided with loose soft skin behind."

The Isle of Wight farmer, who on this subject ought to be an authority, "rarely breeds from a cow which has good points for grazing," "on account of the generally received opinion, that a cow which has an aptitude to fatten is a bad milker."

Acting upon some such theory as this, I have known a shrewd agriculturist half-starve his young stock with a view to making them milkers (they are not guilty of such culpable folly in Ayrshire), as though the imperfect development and lean look occasioned by the want of necessary sustenance might bring the desired qualities in tow.

One word, in conclusion, respecting judges at shows. It has long run in my head that some such plan as the following might answer for the production of

that rare animal—an efficient judge of stock. That there are heaps who pretend to the title I need scarcely remark; and that, with the best intentions, signal mistakes occur continually at the various exhibitions, local and national, is simply a matter of notoriety. Let the farmers of each district throughout the United Kingdom, in council met, say at their market dinner, or elsewhere, as may best suit, name in a certain fixed proportion those whom they consider in their neighbourhood the best “judges” of the various kinds of stock, the best authority on a question of shorthorns, Herefords, long-woolled sheep, small breed of pigs, the hunter, hack, dray-horse, &c.; the names so accumulated to be further sorted, and the final selection enrolled in a volume, annually issued; some symbolic letter—*e.g.* (S.) for shorthorns, (C. H.) cart-horses—being attached to each name: thus John Bacon (S.), Phelim M’Gregor (C. H.), &c.; due credit being given to each district for superior acquaintance with the breeds which are affected there: as, for instance, Yorkshire for hunters; Suffolk for cart-horses, &c.; there being, beyond a doubt, certain esoteric characteristics of each breed which it is not for every one passing by to interpret. The result of such a census, could it be attained, would be most satisfactory; while it could not but be regarded as an honour to be recorded in the list.

There should be, moreover, for each breed a code of points drawn out, such as Colonel le Couteur procured for Jersey cattle, and the Arab has for his mare.

BREEDING.

To breed a Succession of good animals difficult—Families “nicking in”—Meaning of “thorough-bred”—Arab—Welsh Mare—Good Females hard to obtain—Bakewell—Jonas Webb—R. Booth—Orton—Abd-el-Kader—Imaginative Contamination—“Like produces Like”—Holds true rather as respects wild than domesticated animals—Midland Mare—Arabian—Chillingham Cattle—Dutch Cattle—Charles Collings—History of the Shorthorn—Never breed from the infirm—Sir Tatton Sykes—Stock of aged Horses—Touchstone—High condition undesirable—Crown Prince—Jonas Webb never showed Females—Change of air restores Fertility—Gestation over Time—Twins—Free-martin—Dishley Breed—Colour—Crossing requires great Judgment—Mental Traits most enduring—Growth of Likeness—Leslie—Wilson—Spectator—Horns—Ireland as a Grazing Country—Proportion of sexes regulated by Breeder—Newcastle Captain—Marmaduke—Size of Sire—Royal Butterfly—Dwarfing—Persian Horses—Italian—Danish, &c.—Mr. Buckland—Youatt—Keep in Youth—Welsh Cob—Welsh Ponies—Yarrell on British Horses—Rug Breed—Colonel Vaughan—Apricot—Mare slinking Foal—Period of Foaling—Listen but decide—Colts’ jumping—Breeders’ Cares—Black Quarter—Darwin on Species.

IT is well known that there is no great difficulty in selecting first-class animals to stock a farm with, especially if you visit the most celebrated breeders of each different species, and are willing to pay a price for your purchase. I presume you, of course, to be a judge. Else, my friend, pause. Are you

fitted to be a farmer at all? But it is a very different thing to secure by breeding a *succession* of animals in quality and shape *not unequal* to their ancestry, even when you have the first grand elements in your own hands.

There is no doubt that some of the best crosses have been accidental, both in cattle and horses. One family has, to use a technical phrase, "nicked in" well with another. There are few celebrated lines of race-horses, sheep, or shorthorns, of which there is no story to tell behind the scenes, no relation of a lucky hit. After all, is not "mauve" but a fortunate combination of colours? All honour, still, to the inventor. For the difficulty of such success is illustrated by the recent offer of 10,000*l.* by a Manchester manufacturer to an eminent artist for the invention of a new fast colour. So far accidental, however, in breeding are these crosses, only that they have happened to turn up more thoroughly trumps than was anticipated, as the Crystal Palace grew from the notion of a greenhouse. The judgment of the breeder has usually had a strong prescience of the compatibility of the elements combined, and an idea of what the result probably might be, but he can rarely rest quite sure of it. Riddles may be built by rule to order, and biographies teach us that wit, as improvisation and extempore preaching, has been, and is, reduced to the precision of an art. So, too, of breeding. The great rule is to breed from animals that have inherent in them an *ascertained type*; that is, such as come of a *line* which has been for ages, or at least

long years, carefully bred, regard being had to the development of certain characteristic points, and the breeding stock being continually reserved of such as show those lines most strongly, until, as a habit grows from the repetition of acts, a type is finally established, a mould settles, from the continual encouragement of particular traits, all "misfits" (that is, untowardly produce, such as is not wanted), being got rid of at once. Thus, by minute, patient cultivation desirable points become stereotyped in time, as varieties of the geranium and picotee. Then is the type *thorough-bred*, in the first intention of the word; and it is by way of rarest exception that a misfit occurs. Then, "like produces like" with a high degree of certainty. That such is the case is a matter of every-day observation, and is but, after all, the fair reward of intelligent industry. In this sense, too, Sir J. Sebright, as quoted by Yarrell, seems to have used the word. This, however, is the great reason why no half-bred or mongrel should be used as a sire. You do not know, if you breed from such, what objectionable quality, or point, or feature may not crop up when least looked for. The offspring of elegant parents may any day throw back to the cart-grandmother, in a large coarse head; or, if the first foal answers, the second may not—there is no certainty or comfort about it. It is only upon trial you can ascertain what strains she may embed. How true in shape the Arab throws her foal; so, too, the lovely little Welsh mountain mare. I cannot consider breeding a hard business when a person has taken the trouble to study the proper points of the

animal he wishes to breed ; then provides himself with fitting material for a start, and attends to a few simple laws, which are all that is commonly known at present upon a subject shrouded in obscurity throughout. The greatest difficulty in commencing breeding, unless circumstances favour unusually, is the obtaining females of worth. Rash policy is it to breed from any mare you may chance to have, even though she may have been the cleverest of hunters, on the chance of a good card turning up ; though, thanks to her planet, she may be handsome enough herself, she may still come of a casual cross, the eccentricity of which will float up in the second generation. Neither Bakewell nor Jonas Webb would sell a ewe in England. The Bedouin clings by his mare, and will ride off from a laden purse. Before this, too, a blank cheque has failed to tempt R. Booth to part with a prize cow of his best strain. When you consider how much depends upon the female—in fact, nearly all but external shape, wherein the form of the sire is mainly followed—and when you calculate the time, the pains, the cost each eminent breeder has expended in establishing his favourite type, to sell the main element of the compound, even for a startling figure, would, at the end, be simply like dissolving pearls in a goblet for a single reckless draught.

How much is altogether due to the female we scarcely know. Orton, in his suggestive Essay, is of opinion that the outward shape and action are due, *as a rule*, to the sire, the internal parts and the constitution to the dam. I have mislaid his pamphlet,

or his exact words might have been quoted with advantage.

Abd-el-Kader, again, who, from the tradition of his country and his own rare ability, should be a competent judge, states that "the experience of ages has proved that the bones, tendons, nerves, and veins are from the sire. The meanest Arab knows that any malady specially belonging to the bones under which the sire may be suffering, such as splints, bone and blood spavins, the shape of bones, and all diseases of the vertebral column, will be perpetuated in his produce. The dam, inasmuch as she has borne the burden so long, may give *colour* and a *certain amount* of resemblance. The sire gives what may be called the moral qualities. A foal of unquestionably high blood is preserved from vice. (*Arabian proverb*: A horse of noble race has no vices.) The Arabs are very difficult to please in their choice of a stud-horse. They prefer leaving their mares unproductive, if they cannot find a horse of pure blood. They will travel any distance to reach a sire. The sire has more to do with the foal than the dam. Herein my opinion is identical with that of the Arabs. Arab horses are traditionally divided into four great families :

"1st (and best)—Both sire and dam of noble race.

"2nd (faulty)—Sire noble, dam not.

"3rd (slightly inferior again)—Sire ordinary, dam noble.

"4th (a stranger to the country)—Sire and dam ordinary.

"The value of a horse is in its breeding."

But let me refer the reader, who cares to listen to the counsel of a genius in his line, to a perusal of his letter at length. It will be found in the June number (1860) of *Bailey's Magazine*.

Briefly, it may be stated, for successful breeding it is requisite that you use no female which has bred before, without knowing what the cross was ; as it is about universally allowed now, that the first union leaves an unmistakeable trace upon all succeeding issue. It is especially unsafe to breed from a female that has paired with any unsuitable partner ; for instance, in the celebrated case of Lord Morton's chesnut thorough-bred mare, which, having been once put to a quagga, threw subsequently her foal to a black Arabian horse with the stripe of the wild ass across its shoulders. When a white sow is sent to a black boar, it is quite as likely as not that, when she breeds by one of her own colour again, there will be one or more black ones, as a memento of the former family.

Other more curious instances yet, sustaining this view, you may find in any of the more able books upon the subject. Another puzzling phenomenon to be looked to in breeding is that objects which meet the female's eye during gestation, from affecting her imagination, mysteriously take often a further effect upon the offspring. We all know the old stories of children born with currant bunches, &c., on their arms or breast, and there are recorded in the annals of cattle-breeding indubitable facts, which tend to show that there is much of actual occurrence underlying the surface in the apparently romantic account

of Jacob's influencing the colour of the produce of Laban's flock by the agency of peeled rods of hazel, poplar, and chesnut, "set in the gutters in the watering troughs where the flocks came to drink."

A shorthorn cow of purest strain, and suitably mated, has been known to produce a calf of the utterly heterodox colour, black and white; the only clue to which was that a black and white ox had been her companion in the paddock where she grazed. Other numberless convincing instances there are in the same track.

When animals with the *characteristics of a common type, distinctly, as I have described, and securely set*, are paired, the result is all but certain: then indeed holds good the favourite but otherwise deceptive apophthegm of the breeder, that "like produces like;" and each point may reasonably be expected to come out in place attuned as true, as the tap upon a tambourine from an accomplished hand. As surely as abundant wasp-swarms herald in a summer prolific of plums; as surely as the hedges are white with the nut-blossom when a good corn year is in prospect; as surely as a strong head of hares will indicate the keeper that is worth his wages; so will the right stamp of produce come out if you get the right elements to begin with. But then the hunting for these elements, is it not of the nature of a journey to "the diggings?" You may be lucky, and you may be lost!

"Like produces like" is a phrase that has misled many. True to its primeval impress, the crystal splits beneath the hammer of the geologist into a

thousand pieces, every one symmetrically angular with the original lump. In a state of nature each species of living thing preserves its likeness. The water-hen, *simplex munditiis*, there, flirting her tail as she trips along the weedy ditch, how similar her offspring grow up to herself. The gorgeous pheasant on the clover by yon copse ; the red-crested linnet on the spray ; the timid roe beside the loch ; how like to themselves, how almost identical in shape, if not size, their full-grown offspring. But it is not so where the "prentice hand" of man interferes ; upsetting for his convenience, as in the case of the approved cylindrical shorthorn and Leicester form, the wiry wild type. It is then that uncertainty begins, that like no longer produces like as a matter of course, but only to a certain degree, under the hand of a master, and under the circumstances I have described above. For instance, in breeding gamefowl, the same hatch will yield even from a duck-wing pair a mixed assembly of duck-wing, black-breasted red, white piles, &c. Of these the breeder sorts the best and sends them to different homesteads, so as to secure at each one a due uniformity of tint.

In other stock, by analogy, great variety of experience must be looked for.

It will often happen that a fine midland or north country mare, with grand points and action of her own, will throw colts that are not worth the rearing, some ungainly element of her ancestry having doubtless floated to the surface : while on the same estate a small mountain-bred mare will prove a very nugget

to her owner, her produce on good keep attaining to full size, yet clever as the parent, with bone close-grained as ivory, and clean strong foreleg, flat as that of the Arabian ; rare precious points, which many a stud farmer would give much to recover in his stock. When in the improvement of a breed the enterprising artist decides after consideration upon a cross to be adopted, as was the case with Hubback, picked up grazing as a calf in a lane by the quick eye of a keen judge, it is a long time before he can breed away all objectionable characteristics or points that are likely at first to accompany the aimed-at excellence. For instance, the cream white of the Chillingham cattle exists yet in the improved shorthorn, and is the foundation of the rich roan, but the dark nose of that sort all the best herds have got rid of, with the rarest exceptions. In the earlier history of this favourite breed it was not uncommon, but soon came into disrepute, as telling a tale of mongrel combination. Owing to its presence, one aristocratic breeder, some years since, sold off all his herd. It is now fatal at once. You may have the dark all around, but not *upon* the nose. A pretty and desirable effect has a rich brown rim around the muzzle of a light cow. It is frequently found in the best strains; many, indeed, look for it in a purchase as naturally as the connoisseur does for the light band about the nostril of the fawn-tinted Alderney.

Amidst the earlier generations of the improved shorthorn there were many black and white spotted, as the Dutch cow which you see in Hyde Park is now. At present, incredulity would attend the pro-

duction of a pedigree for such a one. Nothing will now go down but the red, the white, the Hubback yellow-red, and the roans—light or rich.

And if beyond selecting for his purpose of the best specimens to be found in the line he has taken up, he is tempted, as was Charles Collings, to pass the line of the particular species he has a fancy for, he takes care to combine by way of fresh infusion only animals *thorough-bred of their sort*, again thorough-bred in the sense I have defined. For instance, with the primest specimens of the old native stock about his locality, derived originally from Holland, he blended of the purest and most firmly established sort he could find, in each case with special view to some particular improvement; wishing to lower the height and give squareness, he crossed with a pattern Galloway cow of ancient lineage; for richness of milk he interwove an Alderney, also of long established quality and peculiar excellence; for the cream-white colour, and perchance the bardihood, he had recourse to the Tanqueray wild herd. Then came the breeding in and in, with the immediate consequence of confirmed resemblance, fine bone, increased aptitude to fatten, but with the ultimate unhappiness of a scrofulous tendency, roach back, and infirm constitution, from which some strains of the more terribly high-bred continue to suffer.

Never breed from the diseased or the defective, no matter what the ailment, as all infirmities are apt to be hereditary. A broken-winded mare will occasionally breed; I have a Shetland pony now that I bought in foal; very badly touched as the ex-

pression is, but *cui bono*, if the last statement be correct ?

A first-class young mare, crippled by an accident in hunting, is the one to fall in with, as you may do occasionally, unless, like Sir Tatton Sykes, you can afford to turn fillies out as they grow up unbridled into the park. It is desirable that the parents be not too old. Mares that have been worked hard when young are apt to disappoint the beginner. Animals, again, that have been fattened often for exhibition, age sooner than others. "The excesses of our youth are drafts upon our old age, payable with interest about twenty years after date," it has been remarked (*Cotton's Lacon*) of reasoning man. From this cause involuntarily, for no fault of her own, suffers an aged mare whose constitution has been trifled with in youth, by being alternately strung up and let down. The offspring of such is apt to be small, and to refuse to grow, however well done in youth. It is worth knowing, moreover, that horses bred from an aged couple have frequently an aged look themselves, especially about the eyes, which are sunken. They not unfrequently exhibit also a quantity of grey hairs upon the forehead, even when only a few years old. This is, however, rather a contingency to which the offspring is liable than a certain rule: on no account, then, break with a favourite, nor should either male or female be put aside from the stud so long as the reproductive powers last: for many celebrated horses, as, for instance, Touchstone, have been born of the aged. In this last regard nature is apparently capricious: some old

mares will only breed alternate years, some if they intermit at all are prone to prove barren altogether after. The only plan is to keep them in fair condition, above all things not too high; let them be, if possible, at grass, and send them to the horse by which they have been used to breed: as they are stated by authorities to be fanciful in this respect when they advance in years.

There is little profit to be looked for when either sire or dam are in too high condition, or too fat. You could count poor old Crown Prince's ribs, every one. A mare forced for exhibition seldom stands to the horse that year: and the disappointment that arises from prize ewes most enthusiasts have had to lament. Mr. Jonas Webb, we were lately told, soon gave up exhibiting the female. Animals that will not breed in one man's hands, will often prove prolific under the care and treatment of another. One or two now eminent shorthorn breeders are recorded to have begun by buying a number of barren but good shaped and well descended cows at the various sales from year to year. The price was seldom great, and the occasional reward of a calf enabled them gradually to creep up to a valuable herd, at a comparatively small figure.

One breeder has a farm for this purpose by the seaside. There, dashed by the spray, and inhaling the salt breeze as they feed along the cliff-side, many a famous cow has recovered from her reproach, and rewarded her trusting owner by produce of incalculable value. Heaps of horses are bred annually, the majority of them brutes, and consequently of little or no value when brought into the market, entirely

owing to their owners' disregard of these few simple rules. Another great secret in breeding is to suit the breed to the soil and climate. The Cotswold sheep degenerates in size in Wales, whatever you may do to prevent it. The shorthorn will not thrive as they could wish in the eastern counties.

If the female goes beyond her time with young, the chances are that she will produce a male. I have known a transgression of this law when I was rewarded by a remarkably fine filly. She was an exception, however, to prove the rule.

Twins from a mare desire not ; they are seldom born alive, yet more seldom reared. When they come as heifers it is a treat, but when they are male and female it is not often that the female will breed (the male is extra valued) : she is what is termed technically a "free-martin." Occasionally they do breed. You may know whether they will or not by their appearance as they grow up. She that is destined to be barren assumes a taurine appearance about the head. I do not know that this law holds good in sheep. Anyhow, twins in your flock are a decided gain. And I should mention here that by saving, to replace your draught, the ewe lambs that are twins, you run an increased chance of doubling your numbers, as the tendency to throw twins is undoubtedly inherited and may be encouraged ; so in the course of years have been established the respective characteristic properties of the pointer and sheep-dog.

Improvers proceed with different objects in view. Bakewell, in the development of that celebrated

Dishley breed, which proves the "persevering energies of a single individual against every possible discouragement" (*Rev. G. Wood*), "went for meat first, then wool, by a course of judicious selection until eventually the two excellences of flesh and wool were combined in the same animal."

The tinting of a breed gives great trouble. The orthodox hue of the Southdown's countenance is a matter of intense pains, as it has been too in the merino. Every reader will recall the emphasis with which Virgil warns against the use of a ram having even a black spot under his tongue.

Curious is it in breeding that reasoning man has about inverted the natural shape of the animals he fattens. That ridge-and-tile back, the serious defect of which Jonas Webb first learnt to appreciate by riding his father's rams about as a boy, and which the great engineer of the Manchester and Liverpool line concluded against mathematically—a formation intended apparently as a provision of nature for the mountain breeds that never know a shed, to enable them to throw off the rain—man has learnt to level, as the miller does his pool.

One injunction of breeders I must confess I could never understand; that is, that you are to cross an animal defective in one point, with another especially favoured in that respect; as if you were to hit *a mean* thereby.

Why breed from a defective animal at all? If a favourite, that is of course a sufficient reason, and in that case you might be content to take what you get. But that in this sort of pairing the excellence of the

one is of necessity to supply the defect of the other is a doctrine I cannot subscribe. Put good to good and you endorse an excellence, but I am too dull to comprehend the theory upon which an animal is picked with one [peculiar shape to counteract and correct the malformation of another. Let the malformed alone I should rather conclude.

This is the universal rule in Arabia, the inferior horse colts they sell at once to the Turks.

If you have the requisite judgment and chance offers, a good cross is sure to tell, as the old farmer remarked by way of consolation to his Janet, when her brooding duck was found to have wandered into the cider press. But it must not escape you that it *does* take *exceeding* judgment, when a certain point is reached in the improvement of a breed or family type, to alter it with *beneficial* effect. When such men as Jonas Webb go in for a pen of ewes at another's sale, they are, you may rely upon it, somewhat similar to his own, only giving an infusion of new blood, or they surpass in some subterranean point of excellence which his want, and which he has pitched upon with the unerring instinct of a truffle hunter. Disraeli, in his eloquent biography of Lord George Bentinck, remarks in his chapter on the Jews, "that it is in vain for man to attempt to baffle the inexorable law of nature, which has decreed that a superior race shall never be destroyed nor absorbed by an inferior." This, if I understand it, applies not to man only, but to domesticated breeds of cattle also. Certain it is that breeds, as the Dishley long-horns, and the dun Suffolk Punch, have been raised

to the highest pitch of superiority, only to run down again under unskilful management, as your pet son's model railway when the 'prentice hand interferes and lifts it from the groove on which the master-spirit started it, and so probably, under favouring circumstances, all the varieties of each domesticated breed would waste back to the original wild type. It has been remarked that in cross breeding the alteration of mental traits is more enduring than that of the bodily form. A well-known instance is that of a kennel of foxhounds, Mr. Meynell's, if I remember aright, having been crossed with a bull-dog, in order to restore a want of spirit that they had begun to exhibit. The result was, that by that one dash of new blood new courage was gained and retained, all outward trace of configuration disappearing entirely in a generation or two.

"The effect of domestication," remarks Yarrell, "in producing variation in colour has lately been exhibited in a very striking and interesting manner in the menagerie of the Zoological Society. An Australian bitch, or dingo, had a litter of puppies, the father of which was also of that breed; both of them had been taken in the wild state, both were of the uniform reddish-brown colour which belongs to the race, and the mother had never bred before; but the young, bred in confinement, and in a half-domesticated state, were all of them more or less spotted."

If the full circumstances under which this change occurred could be investigated, it would probably be found that, as in the case mentioned above, there had been some mental influence exerted on the

mother. Even had she been but chained within sight of a Danish dog or other spotted variety, there is a precedent for her being excited thereby, and a consequent alteration occurring in the appearance of her offspring. There are many such instances quoted in that excellent little work of Milburn's on the cow. In the wild state like associates with like. Hence the various species have at least the chance of escaping this imaginative contamination, which constrained association may bring about. It is consequently considered among breeders of eminence hazardous to allow a choice female of either species, in that interesting condition, to consort with others having any striking peculiarity of colour or shape.

A strong persuasion I have, further, which is, that continual association alone will encourage the development of a likeness. Is it not patent to all that husband and wife are apt to grow like one another, not only in mind, and style, and taste, and habit, but in feature? If the theory of the phrenologist be good, that you may expand and improve bumps by practice, may it not be that the brain, exerting its nervous energies in a similar direction constantly, may cause a corresponding expansion of the pipes, cells, and texture of the human physiognomy generally? Anyhow, I have noticed a man in charge of lions at a menagerie, who grew as like a lion as possible in feature; and I have seen, too, a pig-feeder who seemed to have peered into the points of his charge so frequently and effectually, that his visage, aided in the first instance by the accidental advantage

of a snub-nose and small eye, had an indubitably porcine cast.

Could the painter Leslie have meant anything of this sort, when, after speaking of the exceeding accuracy and care with which his friend and fellow-countryman, Alexander Wilson, had prepared the coloured plates for his work on ornithology, "that most interesting account of birds illustrated with the best representation of their forms and colours that has ever appeared," he further adds, "he looked like a bird; his eyes were piercing, dark and luminous, and his nose shaped like a beak? He was of a spare bony form, very erect in his carriage, inclining to be tall, and with a light elastic step." This theory of strong mental influence, that keen observer, our great poet, would seem to challenge in those memorable lines :

"Oh! who can hold a fire in his hand
By thinking on the frosty Caucasus?
Or cloy the hungry edge of appetite
By bare imagination of a feast?"

Yet, on the other hand, the musician will confidently teach you that a vocal note may be acquired by continually dwelling upon it in the mind; why not, by the same rule, a similarity of features from incessant contemplation? Besides, manner and habit, after a period, give effect to a likeness, and these are copied almost instinctively. The least shadow of facial similarity, backed up by even involuntarily copied ways and habits, in a man may suggest eventually to his associates the idea of his resembling what he

pursues as a favourite study. After all, the nature that makes the moth grow grey upon a grey tree, or brown upon a kindred tint, may have established some sort of a law upon the subject, of which, however, we have yet no clear comprehension.

This is no new theory after all. It has happened casually that, even while I write, I find it suggested long since in the pages of the *Spectator*.

To return, then, to breeding; since the effect of continual association admits of not unwarrantable suspicion, avoid giving it a chance to your detriment as far at least as you can judge and decide.

Strangely altered, and in some sense probably amended, by dint of high art, have been the shape and size of the horns of both sheep and cow. At the root of the change doubtless lies the grand principle of selection. Amidst cattle the long horn was once in fashion; the short horn is now. The middle horn Youatt considers to have been the original which the native oxen wore in early British days. With the huge branching weapons of the buffalo, thirteen feet long, and nearly nine from tip to tip (*Rev. G. Wood*), to escape which barriers are erected for the wayfarer in the neighbourhood of Rome (*Whiteside*), in this treatise we have nothing to do, any more than we have with that natural curiosity, the stupendous "armature" upon the head of the African saddle-ox, which the native is obliged to split up into numerous ribbons, or to dissever so far as to have them swing loosely on each side the head, lest they transfix him, should the animal stumble, or rudely throw his head up. With just the mention of them we pass by.

The long horn that has grown in our islands was objected to originally in that it absorbed an undue share of the juices that contribute to the animal's growth. Buffon remarks of the breed of Ireland in his day, "that both oxen and cows were without horns," but this he explains applied only "to the southern part, where there is scarcely any grass, or very bad, which gives strength to my position that horns arise from a superabundance of nourishment."

Curious, however, was this remark of his in regard to Ireland. Where was the Gulf Stream then with the green-house climate it gives now-a-days? This century I do not think shall pass before those rare pastures become the very reservoir of the best bred cattle in our United Kingdom. Already their store is high. Ultimately the question of horns has come to be an important consideration in the animal's beauty and value, a flat waxy even horn, rather light at root, being an unmistakeable mark of high connexion among short horns; to obtain which unfairly too often the file is brought into requisition. A bend sinister, rumour has it, they correct by sticking a hot loaf down upon the horn, until its substance becomes sufficiently pliable to follow rule into the shape desired, and which, when cool, it retains.

In the *Journal of a Naturalist* it is mentioned that in 1825, in the district where he resided, there was a great scarcity of heifer calves. "How far it extended I do not know, but for many miles round, as we had in that year scarcely any female calves born. Dairies of forty or fifty cows produced not more than five or six, those of inferior numbers in

the same proportion, and the price of female calves for rearing was greatly augmented." Foreigners have held that man can exert an artificial influence upon the proportion born of male and female. A secret of this sort would be of great value to the farmer if it could be endorsed in practice. It is as follows. I borrow from Milburn.

Many investigations have been made to show how far it is within the power of man to control the ratio of the sexes in the animals he breeds. The result of "M. C. C. de Buzareurnes' experiments on sheep was that vigour was favourable to female, and the converse to male births. For females, he proposed to select young rams, and place them in a good pasture; for males, three to five shear animals, and to place them in an inferior pasture. His experiment was successful. In his female trial there were seventy-six female lambs produced against thirty-five males: and in his male trial there were produced eighty males against fifty-five females. Another trial was made by M. Cournuejouis. One section was put to young male ram lambs, and on a good pasture; the other on a poorer pasture, and with old rams. The result was, that in the first experiment there were fifteen males and twenty-five females, and, in the second, there were twenty-six males and fourteen females.

"Buzareurnes also showed that in several lots the approximations to male or female births were also in the ratio of the ages of the animals on both sides. Thus of the young ewes put to the young rams, the two-year-old ewes produced fourteen males and

twenty-six females, the three-year-old gave sixteen males and twenty-nine females; whereas the four-year ewes, to the aged rams, and on the poor pasture, produced thirty-three males and fourteen females.

"More than this is not known; but there is quite sufficient to indicate that the breeder possesses at least considerable power in controlling the proportion of the sexes, and that the more vigour he has of frame and food, the greater will be the proportion of females; and that the converse will hold equally good."

On the other hand, there is to be accounted for the fact that certain celebrated sires have an undoubted tendency to get offspring of one sex continually. For instance, the great proportion of foals from Newcastle Captain are fillies: while, among shorthorns, Marmaduke has the same one-sided reputation for heifer calves. Query, could the relative influence of heat and cold be brought to bear in the way of influencing the proportion born of either sex? No strict analogy can be drawn between the animal and vegetable worlds, or it might be worthy of trial how far the breeder might avail himself of what Mr. Knight has observed respecting certain monœcious flowers, viz., "that cucumber and melon plants will produce none but male or stamiferous flowers, if their vegetation be accelerated by heat; and all female or pistilline, if its progress be retarded by cold." Facts of this sort may some day be woven into a science; at present they are simply curious, and so perhaps beside our inquiry.

Large animals breed unevenly. It is very difficult

to preserve the symmetry of the offspring on a scale at all correspondent to the parents. "The bulls of any extraordinary size are seldom handsome in all their points," wrote Youatt, in the course of his remarks upon the Devon breed of cattle.

"Too high, sir, too high," the Druid informs us, in his sketchy interesting volume, will the veteran Sir Tatton exclaim pleasantly at the sight of anything in horseflesh over 15.2. In regard to cattle, Bakewell's maxim was, "the smaller the bone the truer the make of the beast." But you might as well shout to the winds as preach this to the second and third-rate farmers, whose own obstinacy alone keeps them years in the background. To please this sort get a horse with a monstrous hairy set of legs, coarse hips, and a tall crest: anything to *catch the eye*, and give the idea, however falsely, of size. They cannot comprehend, what is so well known to the artistic and intelligent, that deformed or disproportioned animals of necessity look bigger than a symmetrical one. Take a bull like Exquisite, or a horse like Chester Emperor, and add but a quarter of an inch to each joint—the knee, fetlock, elbow, &c.—and you have him raised some three inches at once; but he will still look small by the side of another only the same height as himself, who has had the three inches stuck on at once in one place, to his arm, say, or any other limb, without increasing his depth in proportion.

But, as regards cattle, even could you make certain of preserving in the offspring the symmetry of the parents on a large scale, the verdict of all intelligent

breeders, from Bakewell downwards, is, that whereas "formerly a great prejudice prevailed in favour of big-boned, large beasts, it has been ascertained that this breed is in point of profit much inferior to the middle-sized kind." It is to be regarded as a golden accident if you meet with animals possessing, combined, the quality and size of Royal Butterfly's parents. The best females of the fashionable breeders, to-day, are rather under than over-sized, but rounded and roomy, having a carcase deep and broad, with the less valuable parts (head, bones, &c.) comparatively small. There are some agriculturists whose stock is large, but it is too generally coarse in proportion to the increased frame.

How to breed dwarf animals is the puzzle. It would pay to know this for certain, there being a constant demand for such. How to *stunt symmetrically*, without subjecting the poor animal to hardship, is the question to be solved. However tiny the parents, the offspring, if well kept, is almost sure to outstrip them. This moment I know of a pony scarce bigger than a Shetland, running on an alluvial moor, with a foal as high as herself. By starving, a creature is rendered of much smaller size than he would otherwise have attained to; but usually, then, some one or more points are thrown into hideous disproportion to the rest of his frame. He is usually most signally disfigured as well as dwarfed. A toy dog has gin administered to him in his porridge from the cradle to his perfect stature; a bantam is bred late in the year. Perhaps the best way to effect your object, if your taste be for ponies and the like, is to breed from

small handsome aged parents late in the year (a late calf proverbially seldom comes to any size, unless superlatively nursed), on poor bleak high mountain land, or on a cold pasture thickly stocked.

A cold temperature has probably much to do with it, when you recall the fact that the region of very small horses is above the line of wheat, and almost beyond the potato. How then are large animals, as the urus and the white bear, grown there? Why, simply because it is their climate naturally, whereas the horse, as Buffon shows, is intended for a warm, though not too hot a latitude ; being yet capable of adapting itself to a greater diversity of climate, so far as we know now, than any other species except the human. For its most magnificent development it requires, undoubtedly, a certain degree of moisture. For instance, the spare Arabian stock sold to the Persians, and fed on the rich pastures along their river banks, loses somewhat of the tenseness of its nervous power, but gains in size, preserving meanwhile its beauty ; the texture of the bone, however, sawn through, is coarser. By the same rule, in England, suckers bought at the Welsh autumnal fairs, swell upon the Lincoln and other fens to a grander stature than they would have attained at home ; while in a Yorkshire stud too great a dryness of soil and climate is considered almost as prejudicial to the young stock as a northern aspect for the sheds.

Thus the horses of Egypt especially, Italy, Denmark, Holland, and Flanders, are large ; those of India, South America, the Gold Coast, Senegal,

Morocco, and China, are of a galloway size. To return, however, some beautiful brown turkeys I have at this moment, that were well fed and housed from the shell, but which, owing to their having been hatched late in the autumn, are not much larger than a goodly pheasant, although of perfect shape, and already devoted to maternal cares. Had they not been well tended they would all most certainly have perished. It must, then, have been the want of more genial weather that kept them dwarfed. What that intelligent advocate of the Acclimatisation Society (Mr. Buckland) would say on this head, I should be curious to know.

Confirmatory, however, of this strain of reasoning, Youatt, writing of the cows, says: "Difference of climate gradually wrought some change, and particularly in their bulk. The rich pastures of Sussex fattened the ox of that district, with his superior size and weight. The plentiful but not luxuriant herbage of the north of Devon produced a somewhat smaller and more active animal, while the occasional privation of Wales lessened the bulk and thickened the hide of the Welsh runt."

Good keep in early youth undoubtedly has a great deal to do with the expansion of an animal's frame, and so doubtless the converse holds good too. There is a terrier in this town, that forms quite a study, broad of beam (I remember him such a slender puppy), with grand loins, head well on and lively, on short fleshy legs, the property of a neighbour. I have been compelled involuntarily to note that dog's development, fed doubtless as he must be on the best

of kidneys and the juiciest of marrow-bones. What a back for a beast to carry flesh—what a model for an ox, what a caution to any that may meditate the stinting of a young one.

The Welsh cob is usually the produce of a pony mare and an undersized cart colt, bred late, too, and reared upon the mountain-side. Occasionally a cob horse of pretty established type for some generations back is travelled. His produce from a pony usually results again in a more than ordinarily good cob, a kind of active bright-going miniature weight-carrier, with clean legs and grand action.

The pure Welsh pony, to which the palm over other ponies has been yielded over and over again at the West of England Society's shows, has been celebrated from all time. To be born of a Welsh mountain mare I hold to be as high a lineage as can befall a horse. A relic are they probably of the gallant sort which Cæsar describes as tearing through the ranks of war in the scythed chariots of his British foe, pawing terribly in the valley (as is so magnificently pictured the Arabian in the oldest book on record), snuffing the battle afar off, the thunder of the captains, and the shouting, so that it required all his personal influence besides his presence to induce his tried troops at length to recover from their consternation; the trained docility and sure-footedness of which astounded him, as they were reined up, he tells us, at full stretch in the most steep and difficult places; a number of which were subsequently thought worthy of being transported to Rome with a view to the improvement of the Italian horse, and became a

favourite breed with the aristocracy of the day; so that their likeness very probably suggested to the eye and mind of Virgil that graphic description of a noble animal that he has left us in the *Georgic*.

From this time forward "occasional mention is made of the excellence of British horses. The Saxons appear to have paid great attention to the horse, and to have been fully aware of the importance of improving the breed. The cognisance which waved on the Kentish royal banner was a white horse. Of what character were the native breeds up to the Norman Conquest it is now impossible even to guess. That they were powerful and well suited to the purposes of war, both by their stature and training, we have the testimony of Cæsar before mentioned, and of subsequent historians; but the first attempt on record to improve the native stock by the introduction of foreign blood, occurred during the reign of William the Conqueror, when Roger de Belesme, Earl of Shrewsbury, imported the elegant and docile Spanish horse, and bred from it on his estates in Powis land: and it is recorded that the horses of that part of Wales were long celebrated for their swiftness,—a quality which they doubtless derived from this happy mixture of blood." (*Yarrell*.)

At a subsequent period there is a tradition of some foreign horses swimming ashore from a wreck in the Bristol Channel, and escaping clear to the hills. Of recent years great occasional efforts have been made by various landed proprietors in North and South Wales to improve the breed by turning out occa-

sionally an Arab, but the small farmers on the mountain-side stand greatly in their own light, and persist in neglecting material which in skilful hands might prove a very mine, and which, even as it is, yields occasional most exquisite specimens. To see a herd in summer-time beneath you in a hollow of the Black Mountains gathered by a spring—of all ages, yearlings, foals, colts, two-year-olds, with the brood mares white from age—and then to contemplate the ragged-jointed indescribable that is lord of the troop, it is a wonder that anything tolerable ever passes to the lowlands. But it is about Christmas-time that, as a purchaser, you have a chance of selecting deliberately to suit your taste. Then, when the Siberian weather sets about those everlasting hills, and by the

“precipices huge
Smoothed up with snow”

there is no longer any picking to be found, they descend to the boundary of the common land and are admitted into straw-yards, being all distinguished by their respective owners through special marks upon the ear or flank. Then is there opportunity for a judge to pick many a valuable colt from amidst the bright-eyed bears (for they look like nothing else), as they crowd nervously into a corner on your approach, ready to spring over if it be not exceeding high, or, cat-like, scramble across in a moment. Some five-and-twenty years ago the noble-hearted proprietor of Rûg, in Denbighshire, Colonel Vaughan, lineal descendant of Prince Llewelyn, took great pride in the

improvement of a tribe upon the neighbouring Berwyn range. The picture of his Apricot I have beside me as I write, $12\frac{1}{2}$ hands in height—a bright chesnut, with a beautiful small head, full eye, elegantly-turned quarters, muscular thigh, arched neck, and a Blink Bonny shoulder, the victor of a hundred races at Ruthin, Mold, and on the historic flats of Harlech, against much taller horses than himself more than once. I am glad to know that there is a good sprinkling of his stock left yet in Merionethshire. How those whipper-in lads attached to the Rûg fox-hounds would on their ponies overtop the highest wattled fence, creep in and out of the ugliest thicket, stream down the steepest hill-side without halt or blunder, then rein them at the bottom as cool as any travelled hunter, so calmly to trot off with a message for the master.

In school-time, on the occasion of the traditional holiday at the annual race hunt, to see those little fellows on their gallant gallows head back the pack upon the open so easily when needful, was, must I confess it? almost one's envy. Nay, to recall it even now, makes one all but exclaim with the Childe—

“Ah! happy days, once more who would not be a boy!”

But I have diverged widely from the subject. A few brief hints, in relation the more especially to horse-breeding, let me give in conclusion. Drinking snow-water, it is said, will make a mare slink her foal: as also will any nauseous smell, or feeding upon savin or willow-leaves. Of the period of par-

turition in the case of cow, sheep, pig, I have spoken elsewhere. With regard to the mare there are strange peculiarities, but much is stated also that is mythical. She is said to foal standing. I have seen many mares foal, but never one so; still I do not deny that mine are exceptional cases. None can see her foal, it is also stated. Again a myth. Without doubt it is a rapid, almost instantaneous event, which you must be wide awake to witness, and she is certainly shy of notice. Racing mares are often watched by a man above out of sight so as not to disturb them. If she be more than ten minutes after the pains seize her before the foal appears, she will require aid. Her time is so "unmerciful," as an old breeder on the hills once remarked to me, that she requires help at once, or you may lose both mare and foal—certainly the last. Having lost one magnificent prize mare under the sad circumstances of false presentation, and having had another saved this year through the experience so sadly gained, I can speak from personal knowledge upon the subject. The mare often rolls a good deal before the delivery commences. Hence, there is much risk when she is confined in a box. I am confident that I have lost several foals from the mother not having had the fair chance of an open field. The birth of an Arab foal is attested with great formality, in the presence of witnesses, and before the secretary of the Emir. When the foal is dropped, let the mare have a bucket of gruel at once. It is advisable to administer a light dose of castor-oil to the young one. I have known more than one saved by the precaution, and as many lost owing to

neglected constipation. It is impossible now to do the dam too well. In fact, every nursing mother upon the farm ought to be treated to her respective best, if you would have the young one result well, not to speak of maternal exhaustion. Much of the foal's future excellence depends upon the care taken of him during his first year. Nor should your care cease with the first year. In the Deccan the foal and yearling are shut up in dark hovels, and forced upon the juiciest of food. I should prefer a shed on the slope of a rocky field, having a rack and manger for delicacies. It is astonishing how clever in picking up his feet a horse so reared will become; how quick of vision to see an obstacle; how handy to avoid it; while in proportion to the extra exercise are his arm and thigh developed.

Above all things, if you breed horses, mind and provide that they have a bite throughout the winter on their paddock. There is nothing for a colt like the taste of green in conjunction with cereals, &c. An eminent breeder I know who has a coarse pasture on purpose "to give them a cupboard," because he says that they are then obliged to eat so much the more to obtain requisite nourishment. This theory (practically clever as he generally is) few will assent to. Such treatment may swell the belly, but cannot expand the girth. Rather the opposite one would think were the right thing. A sufficiency of food of the best quality would be more likely to widen the frame and improve the muscle, without increasing to the verge of deformity the paunch. How difficult is it to steer amidst so many doctors. Rather in these

matters, as in all cases requiring the aid of intelligence, be, after due consideration and listening, self-reliant. You may fall often, but you will ultimately walk.

Rather should one not say to the intelligent and industrious, as Northcote advised Leslie, when on his first being made a Royal Academician he thought fit to consult his companions, each one of whom gave him different advice. "I told him," said Leslie, "of my difficulties: that Wilkie and Lawrence had just given me such extraordinary advice." "Everybody," he said, "will advise you to do what he himself would do, but you are to consider and judge for yourself whether you are likely to do it as he would, and if not, you may spoil your picture." Do not, in fact, trouble yourself much what the opinion of other people may be. Hear what they say, and act upon your own subsequent interpretation of the circumstances. Neighbours are too apt to regard your stock and crops through the wrong end of the telescope, whereas they turn a strong lens the right way on their own. You will get plenty of cold water without this, so just dress your skin to meet it.

As the colts grow up you should have before their sheds a leaping-bar covered with furze, which they must cross to get out. Set it low at first: they will soon learn to top it cleverly as an old hunter. Raise it from time to time, as their jumping ability increases, and when you have a spare half-hour tempt them to you for a handful of vetches or a lump of sugar, until they come to leap it at your bidding.

Handle them from their earliest youth. As foals they should have head stalls ; but allow not the least familiarity. Check by voice the slightest inclination to put down the ears and kick. They will be thus insensibly broken. When their education begins, however, in earnest at three years of age, accustom them to cross banks and ditches, beginning with comparatively small ones, directing them with a leading-line. Do not ride them at fences to begin with ; let them jump them in your hand. A colt is not perfectly broken until he will walk, trot, canter, gallop, jump standing or flying, at a word or signal. When they are so broken the riding of them becomes a luxury indeed—but not until then.

Don't run them at loose hurdles stuck up ; they don't like being fooled, and soon take to chesting them ; a habit which, if persisted in, will ruin both horse and rider some fine day, Asheton Smith and the gate-post notwithstanding.

'Tis not all fun this breeding after all. Come with me into Booth's yard. That heifer is a marvel ! You smile. Ah ! you know not the art, the anxiety, the toil, the infinite risk there is in bringing them to that point of mellow bloom. You can little conceive the dear-bought experience through which that distinguished breeder has waded to his present "pride of place." You could not guess how often have his hopes been snapped at the very moment when he should have reaped the reward of his long study, his expended wealth and energy. Oh ! the sickening memory of that oppressive morning he could dilate upon, when the affrighted herdsman came to say

that Necklace was down and breathing very hard, "he didn't half like the look of her"—Necklace, the sweetest heifer that had been born within the border of the Queen's dominions that last year; by whose side the proudest and fairest had clustered admiring, as she stood so gentle on the tented battle-field; and whose name was a household word with the profession.

Black quarter! beyond a doubt—direst plague of the bovine race: against which avail, for certain, no nostrums or veterinary practice, nor even the precautionary hellebore seton, though there were three Anticyras to pick from. The only chance of steering by which lies in a certain miraculous evenness of feeding on an infinitesimally progressive graduated scale. One change too sudden, one feed too much, one fillip to the vein, and the torrent has burst out—resistless over the system spreads the fatal flood. Nought then avails the breeder. Stricken down at a period when, as O'Connell's, her "minutes were counted by the guinea," bleeding, medicine, are all now to no purpose, as you may see with your own eyes when her silky skin is stripped. His loss you cannot estimate. The unfortunate owner knows it too well, and, retiring to the saddened quietude of his parlour, awaits there the closing intelligence of life's fitful fever being over with another victim on the holocaust of royal winners.

Since writing the above, I have come across Darwin's interesting work on Species, by the light of which, though I have made no alterations in the manuscript, I am glad to see some points of what I

had compiled thrown out more full, while others, such as the relationship of the Nagore bull to our domesticated cattle, are contradicted.

THE END.

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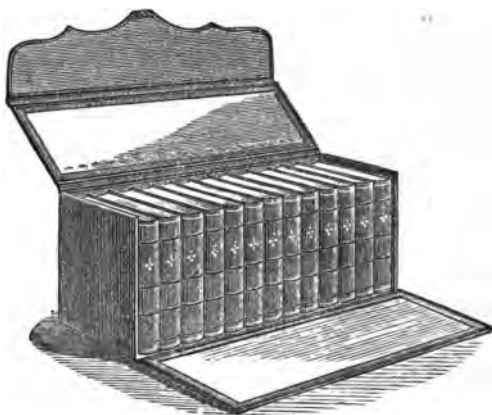
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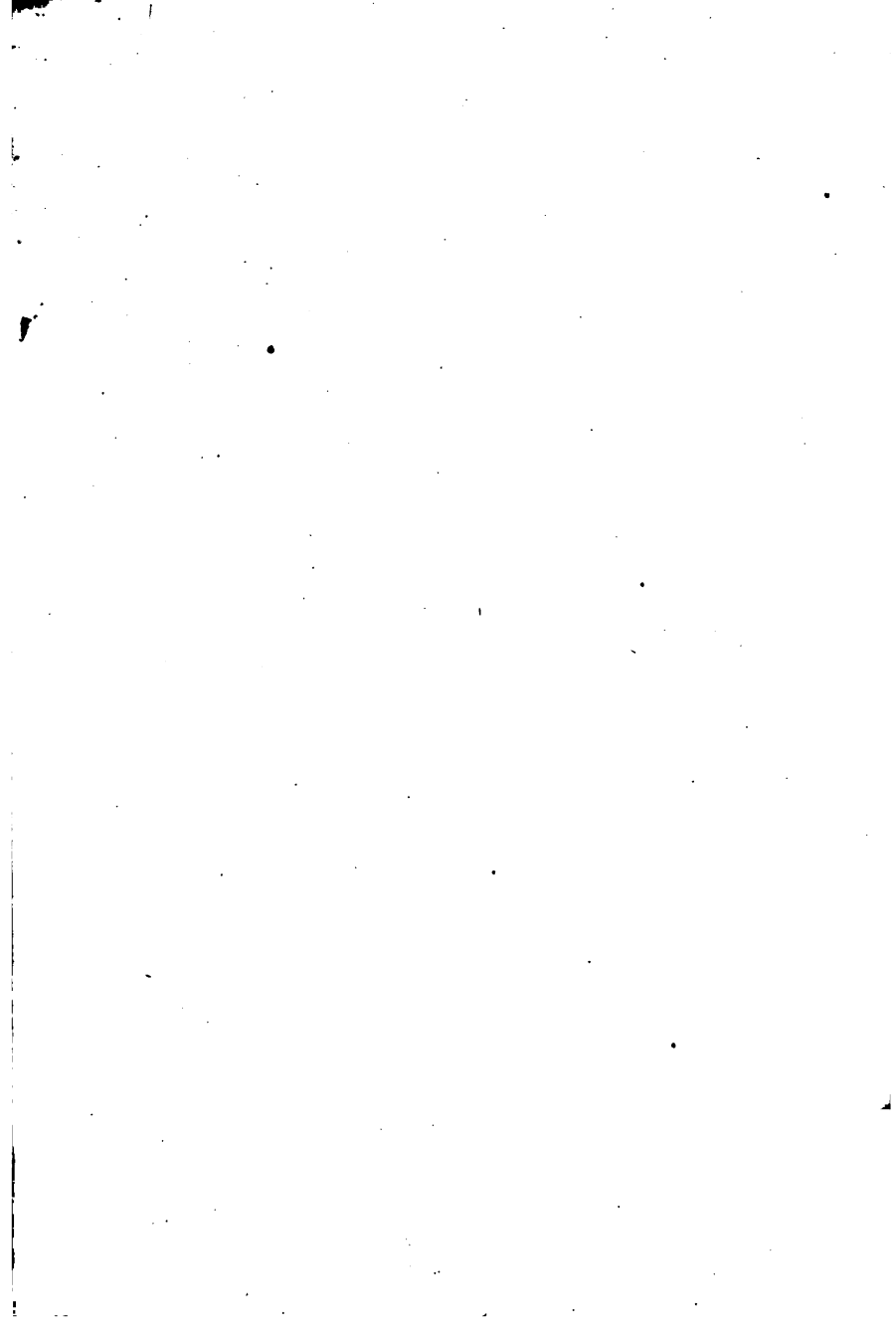
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